SKOKOMISH ESTUARY RESTORATION, PHASE 1

Puget Sound Washington
Section 544, WRDA 2000 Project

SECTION 544 – DECISION DOCUMENT

Seattle District Evaluation of the Decision Document

December 29, 2005

US Army Corps of Engineers®
Seattle District

Cover photo: aerial view Skokomish River estuary, "Great Bend" of Hood Canal, and Olympic Mountains. Copyright State of Washington Department of Ecology.

Prepared by **U.S. Army Corps of Engineers, Seattle District**
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Approved by **U.S. Army Corps of Engineers, Northwestern Division**

Approval Date: _____

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NORTHWESTERN DIVISION
PO BOX 2870
PORTLAND OR 97208-2870

REPLY TO
ATTENTION OF

CENWD-PDD-B (1105)

17 January 2006

MEMORANDUM FOR Commander, Seattle District (CENWS-PM-PL)

SUBJECT: Request for approval of the Project Decision Document for Skokomish Estuary Restoration Project Phase 1, Skokomish River (Great Bend of Hood Canal), Washington, Puget Sound and Adjacent Waters Restoration Program, PWI: 010671, Section 544, WRDA 2000.

1. The subject project has been reviewed by appropriate CENWD staff and is approved.

2. The District is to be congratulated on its successful efforts in developing the restoration plan for this critical area. Moreover, we wish to congratulate the District on its continued progress and success in the advancement of the Section 544 program.

3. Please contact Ms. Darlene Guinto, at (503) 808-3855 if you have any questions regarding this approval.

for Jim Fredericks

DENNIS D. WAGNER
Chief, Planning and Policy/DST

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SECTION 544 – DECISION DOCUMENT prepared by Seattle District.

Seattle District Evaluation
Of the
Decision Document
For
SKOKOMISH ESTUARY RESTORATION, Phase 1
Section 544, WRDA 2000 Project:

_____

Puget Sound Washington

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APPENDICES

SECTION I – EVALUATION OF COMPLETED WORK

Section 544 Summary Review of Proposed Project*: Section I below briefly describes the proposed project, summarizes its status, and outlines further work needed by the USACE Product Development Team to satisfy requirements of Section 544. Section I is intended to evaluate existing work completed on the proposed project, while Section II provides a more in-depth discussion of ongoing and additional work required to supplement existing data and satisfy requirements of the Section 544 program. Section II also describes in more detail the subsequent involvement of the U.S. Army Corps of Engineers in the project.*

1. PROJECT

Skokomish Estuary Restoration Phase 1, Puget Sound Washington
PWI #: 010671
Senator Murray
Senator Cantwell
Congressman Dicks; WA (6)

2. LOCATION

Skokomish Indian Reservation
State - Washington
Nearest City – Union
County – Mason
Vicinity – at the "Great Bend" of Hood Canal at the mouth of the Skokomish River

3. DESCRIPTION OF PROPOSED ECOSYSTEM RESTORATION

3.1 Project and Area Description

The Skokomish River delta is a unique habitat in the Hood Canal basin and Olympic Peninsula (See Figure 1). Historically, this delta had the greatest amount of floodplain and intertidal area (tidal channel and wetland habitats) of any Olympic Peninsula river. The Skokomish River is also the only river in the Hood Canal basin that directly supports all three ESA listed trout and salmon species – Coastal Puget Sound Bull Trout, Hood Canal Summer Run Chum Salmon, and Puget Sound Chinook Salmon – and is the major source of freshwater input into the Hood Canal.

The Skokomish Estuary Restoration project is a multi-phase effort to restore over 200 acres of this estuary and wetlands to historic or pre-1940s conditions. This first phase of the restoration project involves 108 acres of the planned 200-acre effort and is located west of the mouth of the Skokomish River and the Nalley

Slough. Figure 2 is an overview of the Phase I project area and features. (Other anticipated phases of the project are briefly described in Paragraph 3.4, below.) This estuary project is located within the exterior boundaries of the Skokomish Indian Reservation.

3.2 Ecosystem Degradation

In the early 1940s, the mouth of the Skokomish River was converted from tidal wetland to agricultural land known as the Nalley Farms. Subsequent diking in the area eliminated over 200 acres of riverine and intertidal wetlands. The loss of these riverine and intertidal areas created a critical limitation in regional ecosystem functions such as natural tidal flushing of river sediment, removal and uptake of nutrients, and supporting major salmon runs which feed harbor seals, the preferred prey resource for ESA-listed Orca whales.

Juvenile salmon rearing habitat has been cited by all Federal, state, and tribal organizations as the most important habitat recovery action for sustaining the three species noted above and for long-term recovery and removal of these stocks from ESA listing. The loss of this habitat has also reduced or eliminated other critical ecosystem functions. Sediments are no longer removed but are directly transported and deposited in the estuary which impacts shellfish production and reduces the amount of eelgrass habitat. The same impact occurs with nutrients which are now directly transported to the estuary and results in the low dissolved oxygen that can impact all estuarine and marine organisms that use the southern-end of Hood Canal.

The mouth of the Skokomish River has been historically used by the Skokomish Tribe for fishing, shellfish harvesting, plant gathering, and tribal ceremonies. Ecosystem degradation has impacted the tribe's use of the estuary, particularly through the loss of shellfish and salmon habitat and loss of plant species used by the tribe for weaving.

Land in the area of the proposed restoration is no longer farmed or maintained, and has become a site for occasional illegal waste dumping.

3.3 Basis for Proposed Project

The Puget Sound and Adjacent Waters Restoration Program (PSAW) was authorized by Section 544 of the Water Resources Development Act (WRDA) of 2000, Public Law 106-541, and provides the Corps of Engineers authority to implement critical restoration projects that will produce immediate and substantial ecosystem restoration, preservation, and protection benefits. The Section 544 Phase 1 Report was approved by the Assistant Secretary of the Army for Civil Works in March 2005. The Skokomish Estuary Restoration project is one of four proposed "early action" projects – a category of projects described within the

report. Under the Section 544 authority, existing projects, designed by non-Federal interests are to be used to the maximum extent possible.

Regional stakeholders listed in Section 544, including the Washington State Governor's Office, Hood Canal Salmon Enhancement Group and Hood Canal Coordinating Council, have endorsed the Skokomish project as being the highest priority project for restoration of endangered Hood Canal summer chum. Other Federal and state stakeholders, including U.S. Fish and Wildlife Service and NOAA Restoration Center, have contributed funds to the Skokomish Tribe to construct a small pedestrian access bridge to the barrier island adjacent to the proposed restoration site to help the tribe with spiritual and cultural activities after restoration. These agencies, as well as U.S. Geological Survey, Washington Department of Natural Resources, Washington Department of Fish and Wildlife, and the University of Washington, contributed scientific expertise to develop a comprehensive monitoring plan for the proposed restoration project. The Salmon Recovery Funding Board, another authorized stakeholder, has contributed state funds to the Skokomish Tribe for the proposed project. The Skokomish Tribe and Mason County (both authorized stakeholders) are collaborating with the non-Federal sponsor, Tacoma Public Utilities, to fund, design and manage the project. The Tribe and the City are signing a Memorandum of Understanding (MOU) for the project that will allow the Tribe to transfer state funds to the City to meet the City's cost-share obligations with the Corps.

The proposed Section 544 Skokomish River Estuary Restoration project is a regional priority that will provide immediate ecological benefits, that uses existing designs provided by non-Federal interests to the maximum extent possible, and that is consistent with fish recovery plans by NOAA and USF&W.

Figure 1. Skokomish Estuary Restoration Project, Phase I location and vicinity map.

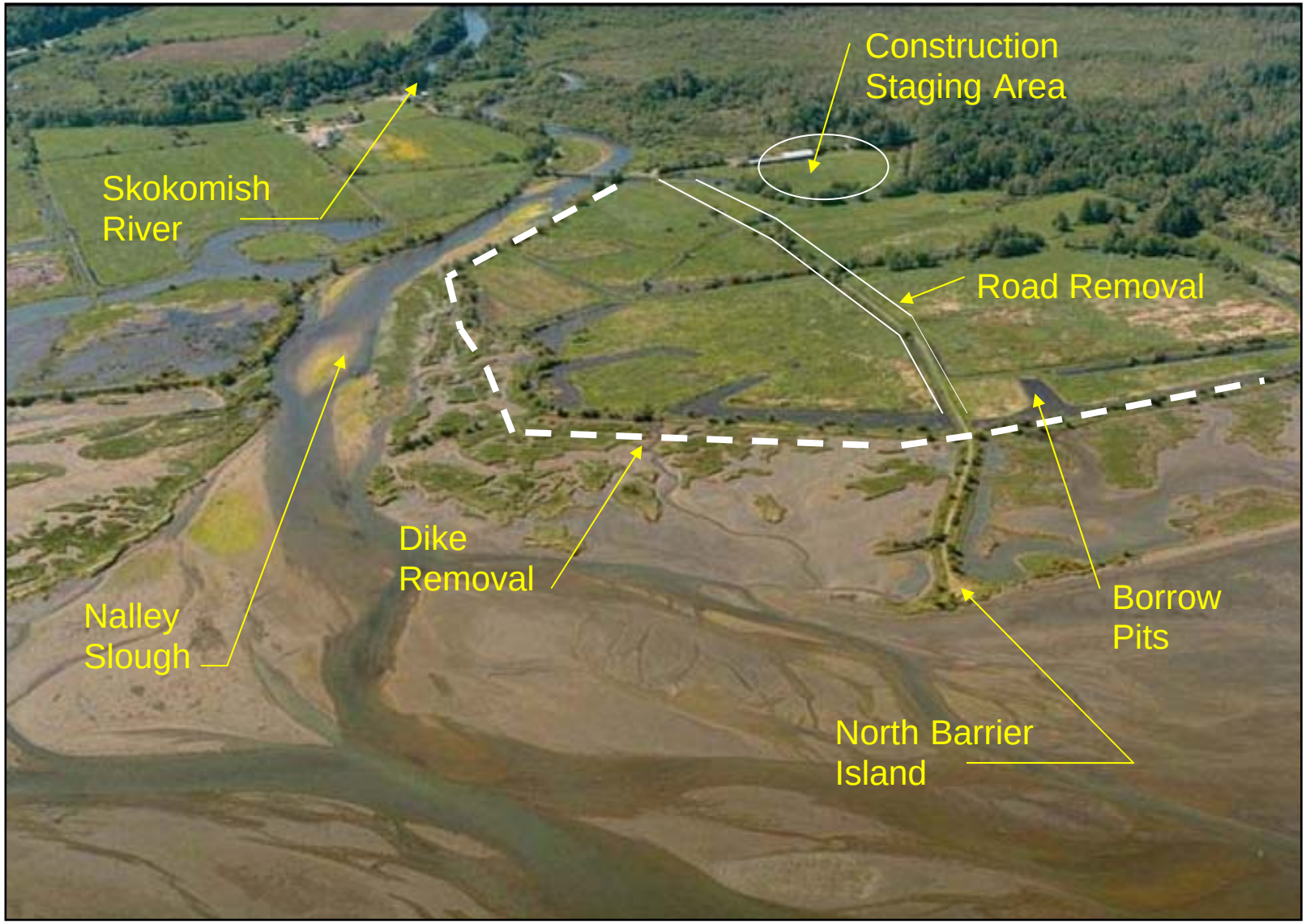

Figure 2. Overview of Phase I area and project features looking south.

3.3 Proposed Project

Restoration of tidal inundation and mixing in the Skokomish estuary to enhance salmonid habitat and water quality improvements in Hood Canal.

Phase I of the restoration effort, involving 108 acres of intertidal wetlands on the west side of the Nalley Slough (Figure 2), includes removing approximately 5,000 linear feet of dike surrounding the project area. Four existing tide gates will also be removed (Figure 3) that are embedded within the dikes. Three lower elevation notches will be created slightly below the base elevation of the removed dikes to guide tidal inundation and channel development into the project site following dike removal. Borrow pits that are just landward of the dikes will be refilled and regraded in order to allow even tidal flows from the outer, existing tidal wetlands into the restoration areas, promoting the natural formation of tidal sloughs. The borrow pits were created from the original dike construction in the 1940s (Figure 4).

Figure 3. Existing tidal gate (concrete structure in foreground) to be removed.

Figure 4. Borrow pits located adjacent to the existing dike.

An existing elevated road network inside the restoration area will be removed and partially replaced with an elevated boardwalk (approximately 3,725 linear feet) that will allow unimpeded tidal inundation throughout the restoration area (Figure 5). The 8-foot-wide boardwalk is necessary to allow continuing maintenance of the Tacoma Public Utilities (TPU) high-voltage transmission towers in the restoration area, and to maintain Skokomish Tribal access to usual and accustomed fishing grounds and traditional ceremonial sites. The boardwalk will end at the north boundary of the TPU property and tie into the existing road access to the North Barrier Island. A letter was submitted to the Corps of Engineers in April 2005 clarifying the need for continued tribal access to the north jetty or barrier island (See Appendix A).

Figure 5. Access road to North Barrier Island.

Maintenance pads and fences will be built around three high-voltage transmission towers within the project limits (Figure 6). Seven existing wooden low-voltage power poles will be replaced with fiberglass poles by TPU, the non-Federal sponsor, prior to construction of Phase I.

Temporary access roads will be constructed with quarry spalls over geotextile fabric to access portions of the project during construction and will be removed following construction.

See Appendix E for a project plan showing proposed features to be constructed.

Figure 6. Tacoma Public Utilities high-voltage transmission line.

3.4 Other Anticipated Phases of Proposed Project

The other anticipated phases of the restoration project include:

1) removing a portion of elevated road or causeway and installing a bridge to the North Barrier Island,

2) removal of the west dike to enhance tidal interchange over a larger area,

3) full restoration of Nalley Island to the east, and

4) improving freshwater interchange on the access road (Nalley Farms Road) by modifying existing culverts.

These actions combined would result in the restoration of over 200 acres of the Skokomish estuary. Each future phase might involve a separate sponsor and project cost-share agreement, primarily due to land ownership boundaries in relation to the proposed project features.

4. WITHOUT PROJECT CONDITION

The without project condition would be expected to continue to deteriorate with sediment buildup at the river mouth impeding natural processes, continued low dissolved oxygen due to excess nitrites in the Skokomish River waters, and limited rearing habitat in lower Hood Canal.

5. WITH PROJECT CONDITION

Restoration of intertidal wetlands and estuary habitat at the previous Nalley Farms site will support recovery of threatened Hood Canal summer chum salmon and Puget Sound Chinook salmon, and will improve nearshore habitat for other species of salmon, trout, shorebirds, and shellfish. This restoration will also provide wetland area that will help decrease nitrites in the Skokomish River and Hood Canal, which now contribute to the low dissolved oxygen levels in Hood Canal. With the removal of the dikes, sediment movement within the tidal basin will be more natural and promote a sustainable ecosystem.

Historical Skokomish tribal use of the site would be restored by recovering fishing and shellfish resources, and enabling wetland conditions for native plants, such as sweet grass used for weaving. The proposed boardwalk will maintain access for tribal elders to ceremonial sites within the estuary without restricting tidal inundation.

The boardwalks will provide the same level of service access to the utility poles/lines and same level of access for the tribe that was provided in the without project conditions.

6. SUMMARY OF EXPECTED PROJECT OUTPUTS

Table 1 summarizes expected project outputs from restoration of the 108 acres under Phase I.

TABLE 1. EXPECTED IMPROVEMENTS FROM PHASE I PROJECT OUTPUTS

Ecological Process	Improvement expected from project feature	How project feature achieves improvement	How project feature was measured
Physical Processes	Increased interchange of fresh and saltwater.	Restoration of salt marsh habitat will create an expanded salinity gradient expanding areas available for salmonids.	Acres of marsh type restored
	Formation of an expanded dendritic tidal channel system.	Re-creation of a dendritic tidal channel pattern will enhance tidal interchange in the marsh and allow for salmonids to access large areas of the marsh at different parts of the tidal cycle.	Tidal channel length
Aquatic Productivity	Increased rearing habitat.	Restoration of salt marsh and up to 2000 feet of tidal channel will expand estuary feeding areas for salmonids.	Tidal channel length and marsh type restored
	Change to salt marsh vegetation.	Restoration of salt marsh will provide increased food sources for fish and their prey species using the marsh.	Marsh type restored
Water Quality	Increased uptake of nutrients by marsh vegetation.	Uptake of nitrites by marsh vegetation should lead to an improvement in dissolved oxygen levels in Hood Canal.	Marsh type restored

7. IMPORTANCE OF PROJECT OUTPUTS

The estuary area is very critical for rearing and acclimation of juvenile salmonids from freshwater to saltwater, but has been heavily impacted by human development. Project implementation would represent an incremental gain in the recovery of Puget Sound Chinook, Hood Canal summer chum salmon, and bull trout populations of Puget Sound. Similarly the restoration in this area will aid in recovery of lost functions and processes within Puget Sound, which support habitat for various migratory and resident bird, mammal, and marine species. Increased nutrient cycling will reduce Skokomish River impacts on low dissolved oxygen problems in Hood Canal.

8. PROJECT SPONSORS AND PARTICIPANTS

The U.S. Army Corps of Engineers (USACE, the Corps) is currently involved in Phase 1 of the restoration project under Section 544 authority of the Water Resource Development Act of 2000. The non-Federal sponsor for Phase 1 is Tacoma Public Utilities (TPU). TPU purchased the Nalley Farms property in 1991 and maintains a high-voltage transmission line that runs east-west between Cushman Dam on the north fork of the Skokomish River and the Tacoma Service area. A separate low-voltage power line also runs east-west through the estuary and is operated and maintained by Mason County Public Utilities District #1 (PUD). The low-voltage line runs from Potlach to Union.

The Phase 1 restoration project lies within the exterior boundaries of the Skokomish Indian Reservation. TPU is collaborating with the tribe to design and fund construction of the Phase 1 restoration project.

Initially, the preferred alternative consisted of selective breaching of the dikes to restore tidal flushing and improve fish and wildlife habitat.

As the project developed, it became evident that complete removal of the existing dikes versus selective breaches, would increase the ecological benefits of the restoration through improved tidal interchange, sediment deposition, and dendritic channel formation.

In 2003, assistance was requested under Section 544 authority. The Corps' role in the project is to review and validate the existing plans of the project sponsor, or modify them, if needed, to meet any federal requirements, including the Corps' tribal trust responsibility, as a federal agency, to maintain and protect tribal rights.

9. EXISTING STUDY OR PLANS

The dike removal project was initially funded by the Washington State Salmon Recovery Funding Board (SRFB) to investigate restoration of a significant portion of the Skokomish estuary. The SRFB-funded project was sponsored by the Skokomish Tribe and produced surveys and final design plans for this proposal.

Existing studies and analysis include:

- Washington Conservation Commission Water Resources Inventory Area (WRIA) 16 Salmon Habitat Limiting Factors Analysis 2003

- Hood Canal Coordinating Council (HCCC) Salmon Habitat Recovery Strategy 2004

10. STAGE OF PROJECT COMPLETION

The restoration plan presented by the sponsor is relatively complete and only requires backcheck by the Corps study team.

Scope:	Yes
Study:	Yes
Plans & specifications:	Yes (pre-award activities yet to be completed)
Real estate acquired:	Yes: NFS owns fee title Pending: construction access and utility relocation
Environmental permits received:	Received: concurrence letter from NMFS Pending: concurrence letter from USFW and THPO

11. EVALUATION OF EXPECTED ECOSYSTEM BENEFITS

11.1 Adequacy of Known or Expected Relationship between Proposed Project Actions and Ecological Response

Similar projects, such as the dike removal at the mouth of the Nisqually River, demonstrate that coastal land at inter tidal elevations will revert back to a tidal wetland when exposed to normal saltwater inundation. The tidal wetlands will provide critical rearing and foraging habitat for juvenile salmon.

The National Academies (formerly National Academy of Sciences) has determined that wetlands may be the most efficient method for reducing nitrogen discharge into marine ecosystems. The wetlands create habitat for bacteria to digest nitrites in water and convert them to inert nitrogen in the atmosphere. The Puget Sound Action Team concluded excess nitrogen in Hood Canal is causing algae blooms which subsequently die and decay, consuming the dissolved oxygen. Much of this nitrogen is coming from farmland and septic systems along the Skokomish River. Due to increased local and regional awareness, various efforts are underway to reduce nitrogen sources; however, these efforts are not being performed in a cohesive or project-related manner to ensure measurable benefits are achieved. Also, the ecological stresses are severe and source reduction is estimated to take many years to be effective.

It is also believed that estuary restoration could increase the frequency and duration of Orca whales visiting Hood Canal near the mouth of the estuary. Orcas are known to feed on harbor seals in Hood Canal. As salmon habitat and salmon numbers increase, numbers of harbor seals, which feed on salmon, might increase in the area, leading to more Orcas to this part of Hood Canal.

11.2 Expected Schedule or Timeline between Proposed Action and Ecological Response

Immediate and significant benefits will be seen as biomass in restored areas provides prey opportunities for juvenile salmonids. Salt marsh plants have already begun to colonize areas of Nalley Island that were breached naturally in 1996, showing that a rapid turnaround in vegetation characteristics can be expected, resulting in immediate benefits for salmonid rearing and nitrogen uptake. Subsequent to these immediate benefits, ecological responses will still be evident but less dramatic as the area begins to return to a more natural state and the increases in biomass stabilize.

11.3 Adequacy of Study or Plans for Corps of Engineers Implementation

The restoration of the Skokomish estuary is considered to be a very high priority action for the recovery of salmon in Hood Canal. Since the Skokomish River is the largest tributary to the canal, its restoration would have significant impact on the total rearing area available for juvenile salmonids, and on area water quality. The proposed project meets the significance criteria for utilization of the Puget Sound and Adjacent Waters Restoration Program. The non-Federal sponsor has developed plans suitable to support an application to the U.S. Army Corps of Engineers Regulatory Branch for a Section 404 permit of the Clean Water Act.

An independent technical review (ITR) was conducted by the Corps. Evaluation and backchecks were conducted in accordance with the Corps' Quality Control Plan requirements.

11.4 Summary of Alternatives Considered

To meet the objectives of reestablishing salt marsh as rearing habitat for juvenile salmonids and improving area water quality, the sponsor's study team examined several methods of dike breaching and removal. In addition to removing various sections of dike, alternatives included assessing the need for additional land restoration in the project area to speed up the process of marsh restoration. Furthermore, all designs had to consider the need to accommodate tribal and TPU land use after dike removal. The three major design issues are detailed below:

11.4.1 Dike Removal

Dike removal alternatives included selective removal of various portions of the dike, removing only the dike east of the north-south shoreline access road, and removing the entire dike. The pattern and extent of saltwater inundation, the direction of tidal flushing, the effects of wave action, and the proximity of riverine channels were all considered. It was considered important to remove the dike along the river in order to ensure a natural

saltwater-freshwater mix which would be crucial to restoring estuarine functions in the area.

There were concerns that wave energy on the west side of the project area would threaten the TPU transmission towers and any transportation routes inside the project area. However, TPU has subsequently found that existing towers to the west of the project area are currently unprotected against wave energy and are in very good condition; therefore, wave energy would not be a concern for the transmission towers. It was determined that a combination of removing the existing dikes to elevation 8.0 feet, along with creating three lower notches to elevation 7.5 feet, would offer sufficient opportunity for tidal channels to re-establish themselves in similar locations to the historic channels.

11.4.2 Additional Land Restoration

The evaluation considered whether to allow the restoration area to develop naturally, or to construct some initial tidal channels with plantings. A detailed design for forming tidal channels was originally developed but, upon review by nearshore experts, was revised to recommend that the land be left to recover naturally. This would minimize soil compaction and vegetation disturbance due to construction inside the project area. There was also considerable question as to whether manmade tidal sloughs would be as effective and sustainable as those formed naturally. It is anticipated that within one year a significant functioning dendritic channel system will have formed because the historic channel system remains intact.

Three lower notches proposed in the existing dikes are keyed at locations to replicate historic channels in the estuary and meet natural openings water-ward of the dikes. Landward of the notches, the anticipated channel through the borrow pits will be reinforced with compacted backfill on each side. Geotextile fabric will also be wrapped around the side slopes of the notches.

11.4.3 TPU and Tribal Land Use after Restoration

The Skokomish Tribal Council commented on land use requirements after project completion. The Council required access be maintained to both fishing eddies along the river shoreline and to the northern saltwater shoreline. The Council agreed to accept boat access to the fishing eddies, but required that a land route be maintained to the northern shoreline for tribal activities.

TPU looked at relocating the transmission towers outside the project area, but the cost for relocation was several million dollars. TPU required all-weather, year-around maintenance access be maintained to the towers. Alternatives evaluated include a raised road and bridge system, helicopter

pads for the transmission towers, a submersible road system, and an elevated boardwalk.

The raised road and bridge system alternative was expensive, requiring filling in the restoration area and concentrating tidal flows under the bridges. The helicopter pad alternative also required filling in the restoration area and would have been hazardous to use in adverse weather. The submersible road alternative provided for even saltwater inundation, but it cut off natural tidal slough formation and it would not have met the year-around access requirement for maintaining the TPU transmission towers.

The elevated boardwalk alternative was selected and included looking at both wood and concrete options. While the wooden boardwalk allows for enhanced circulation in the wetlands area compared to the road alternative, the wider span of the concrete boardwalk supports allows for full circulation and extended tidal slough formation. The concrete boardwalk has the least impact in the restoration area, allows natural tidal slough formation, meets the TPU all-weather, year-around access requirement, and fulfills the Federal government's tribal trust responsibilities by maintaining access for tribal members to the North Barrier Island.

11.4.4 Public Use and Access

Public access to the site under the without project condition is by boat and by vehicle across Skokomish Indian Reservation lands. The with project condition will continue to provide water access to the site via TPU lands. Consistent with Corps policy for ecosystem restoration projects that do not include recreation, public access will not be encouraged. Public use within the site will be by walking on the boardwalk, wading in the wetlands, or by boat in the open water. Vehicular use by the public of the proposed boardwalk will be controlled by providing gates or bollards for safety and security reasons. Current public use of the site is low and, following project construction, is expected to continue to be low and of a passive nature.

11.5 Life Safety and Property Protection Issues Identified and Addressed in Design

Since the TPU transmission towers could not be affordably relocated, they must be maintainable in place. The proposed boardwalk will lead to the towers on the way to the northern shoreline, and TPU was concerned about people either climbing on or vandalizing the towers. TPU also required that there be an area of land under and around the tower base struts of the tower, so a technician on the tower can safely lift tools with a haul rope from the ground, even in windy conditions. For this reason, TPU requires maintenance pads be built surrounding the towers. These maintenance pads will be secured by a perimeter fence topped with barbed wire.

The Skokomish Tribal Council requires safe vehicular (small all-terrain vehicles or similar) access be maintained to the northern shoreline so elderly or infirm tribal members have the same access that they currently enjoy. The boardwalk will have adequate curbing and handrail/guardrail to maintain safe access for the tribal members and TPU maintenance vehicles.

Care will need to be taken throughout construction to avoid disturbance to culturally significant items should they be uncovered during removal of levee and road materials. Elevations of dike and road removal were designed to avoid or minimize potential risk of disturbance. Cultural resource investigations of the site have been conducted by the Tribe and no known culturally significant sites are located within the project footprint. Due to the historic use of the site for tribal activities some potential still exists that culturally significant items may be uncovered during excavation, and requirements will be included in the contract specifications and noted on the drawings. The contractor will be required to notify the Government Representative on site immediately upon any finding, and work will be stopped until appropriate action is determined.

Public access to the construction site will be restricted to ensure public safety. All non-native material will be removed to an approved disposal site to eliminate public nuisance concerns. Any surficial trash will require removal by the sponsor prior to initiation of construction activities and is not cost-shared.

The sponsor has certified that there are no known hazardous and toxic waste materials on the site of the Phase 1 restoration project.

Seattle District also conducted a preliminary Hazardous, Toxic and Radioactive Waste (HTRW) assessment that included a document review and site visit. No visual evidence of HTRW contamination was found in the project area during the site visit. See Appendix B for HTRW Preliminary Assessment Study.

11.6 Design Provisions Used to Obtain Ecological Objectives

Project design was based on available technical data obtained at the site to ensure the sustainability of the project and maximum ecological benefits from the proposed measures. The proposed project will follow all general construction guidelines and specific conditions described in the environmental permits to ensure construction-related impacts do not adversely affect the ecological objectives being pursued. These general construction guidelines and conditions will be added to the construction drawings and specifications when available.

The project was designed to allow maximum, natural tidal inundation and slough formation throughout the restoration area within project constraints.

The project team decided to fill and level the borrow pits originally used to construct the dikes. This will restore the land more closely to its original state before the

dikes were built. Also, as tidal channels form, they will not be concentrated or directed by the presence of the borrow pits. Elevation controls may be necessary if monitoring of channel development indicates excessive erosion of the material in the borrow pits.

The project team also decided that among important elements in achieving the restoration objective was allowing even tidal inundation and natural (unrestricted) tidal slough formation throughout the restoration area. For this reason, the team decided that constructing an elevated boardwalk was the best method of maintaining required access into the project area and protecting ecological objectives.

11.7 Constructability Review Performed during Design

The constructability review was conducted as part of the ITR (Paragraph 11.3). Several comments were received relating to construction staging and sequencing.

The terrain in the restoration area (outside of the established road network) has high ground water and is very soft. The project team considered the stages of construction regarding haul routes, rate of construction, and total impact in the restoration area. It was decided the TPU transmission tower maintenance pads and access boardwalk should be constructed initially, followed by removal of the interior roads. Then the area would be ready for tidal inundation, and the dikes could then be removed below the high tide line.

Excavators will work on top of the dike, removing the material. Suitable material will be placed in adjacent borrow pits, and will then be smoothed either with the excavator bucket or a light bulldozer. Trucks will run on top of the dikes to the road system to haul away unsuitable or excess material from the dike removal. Some local contractors have track-mounted trucks that can run in softer soil conditions and can turn 180 degrees on top of the dike. After the dike removal, the unneeded roads within the restoration area will be removed.

An Independent Technical Review (ITR) of the design and cost estimate was conducted in August 2005. Comments were discussed and resolutions were incorporated into the decision document and drawings.

11.8 Real Estate Needs Identified and Status of Acquisition Actions

The first phase of the estuary restoration project is limited to land owned by Tacoma Public Utilities. A planning appraisal was completed by the Corps of Engineers, Real Estate Division, and results are provided in Section II, Lands, Easements, Rights-of-Way, and Relocations (LERR). Pending real estate actions include TPU coordinating an easement with the Skokomish Indian Tribe and Mason County for construction access along Nalley Farms Road and replacing the wooden low-voltage transmission line poles with composite material.

SECTION II - SUMMARY OF ONGOING AND ADDITIONAL WORK NEEDED

Section 544 Internal Supplementation Requirements for Proposed Project. *Section II below provides a summary of additional work needed to supplement existing data for the proposed project. It describes supplemental data and project management needs still required to satisfy requirements of the Section 544 program. The USACE project development team would be lead for obtaining additional data prior to implementation.*

As mentioned earlier, the restoration plan presented by the non-Federal sponsor is relatively complete and requires only backcheck by the Corps study team. Following approval of this decision document, pre-award activities will be conducted including refinements to the construction drawings, preparation of construction specifications, preparation of the government cost estimate, and advertising for bids. Construction is anticipated to be accomplished by negotiations with a pre-selected 8a contractor under an existing Multiple Award Task Order Contract (MATOC) at Seattle District Corps of Engineers.

12. RISK ANALYSIS

Risk is defined as the chance of a bad thing happening. Risk Analysis is the process of 1) assessing the risks and related uncertainties, 2) managing the risks by analyzing the effect of the risk, and 3) effectively communicating about the risks.

12.1 Risk Assessment

The following charts identify the key risks or events that could happen on this project and agreed upon responses to those risks.

12.2 Risk Communication

The project delivery team (PDT), including the sponsor, developed the risk analysis initially. A review and update of the risk analysis by the PDT will be completed prior to the initiation of each phase. The risk analysis will also be included in the Project Management Plan.

EVENT	Probability				
	Unlikely	Seldom	Likely	Occasional	Frequent
River channel migrates into restoration area		M			
Dissolved Oxygen levels not affected (lowered) by project		L			
Project construction costs exceed those estimated		L			
Federal construction funding is unavailable in FY06		M			
Access to project site unavailable by land	L				
Dendritic channel formation not meeting target	L				
Damage to boardwalk and high-voltage transmission lines due to increased wave action and exposure to tidal flushing	L				
Flushing of natural tidal system does not occur in restored area as anticipated	L				
Expected car body disposal results in hazardous material removal	L				
Fish stranding landward of the dike removal	L				

Consequence	Description	Color
Catastrophic	The impact of the event is disastrous or ruinous to the system affected.	
Critical	The event impacts a necessary component of the system affected.	
Marginal	The event impacts the efficiency and effectiveness of the system affected.	
Negligible	The impact of the event is more nuisance than substantive.	

Probability	Description
Frequent	Occurs often, continuously experienced
Occasional	Occurs several times
Likely	Occurs sporadically
Seldom	Unlikely, but could occur at some time
Unlikely	Can assume it will not occur

Risk Level	Level Description	Risk Manager
E	Extreme	District Engineer
H	High	Deputy DE or Branch Chief
M	Moderate	Program Mgr
L	Low	Project Mgr

EVENT	RISK MANAGEMENT				
	Hazard	Cause	Risk Mgr	Agreed Response to Risk	Expected Result of Response
1) River channel migrates into restoration area	Moderate	Eliminating dikes along west side of river channel	Program Mgr	Ensure public health and safety	Allow river to develop own channel while protecting towers
2) Dissolved Oxygen levels not affected (lowered) by project	Low	Tidal exchange less than expected	Project Mgr	Coordinate w/Dissolved Oxygen monitoring efforts	May lead to follow-on project or adaptive mgt of this project
3) Project construction costs exceed those estimated	Low	Differing site conditions or sponsor request	Project Mgr	Modify design or obtain more funding to accommodate change	Complete project within scope and agreed upon budget
4) Federal construction funding is unavailable in FY06	Moderate	Policy or Program change	Program Mgr	Postpone advertising/construction until funding is available	Sponsor may pursue completion of project by other means
5) Access to project site unavailable by land	Low	Real estate not available to sponsor	Project Mgr	Modify contract specs to accommodate access by water	Increase costs to the project
6) Dendritic channel formation not meeting target	Low	Unexpected blockages or impeded tidal inundation within site	Project Mgr	During construction, ensure unanticipated blockages are removed - Monitor channel formation	Potential follow-on contract to revise notch elevation/regrade to encourage additional channel formation
7) Damage to boardwalk and high-voltage transmission lines	Low	Excessive wave action and exposure to tidal flushing	Project Mgr	Repair damage	Consider alternative access and additional protection of high voltage lines
8) Flushing of natural tidal system does not occur in restored area as anticipated	Low	Dendritic channel formation not meeting target	Project Mgr	See Event #6 above	See Event #6 above
9) Expected car body disposal results in hazardous material removal	Low	Fuels/hazardous materials leaking from car bodies	Project Mgr	Sponsor remediates site	Potential delay of construction completion-financial burden on sponsor
10) Fish stranding landward of the dike removal	Low	Low spots develop in the borrow areas or land swelling does not occur as expected	Project Mgr	Monitor site for fish stranding following construction - remove fish when necessary	Minor regrading with hand crew to eliminate fish stranding - burden on tribe/fisheries

13. LANDS, EASEMENTS, RIGHTS-OF-WAY, AND RELOCATIONS (LERR)

The Non-Federal Sponsor (NFS) for this project is Tacoma Public Utilities, municipally-owned by the City of Tacoma, Washington. This project is the first in a series of projects intended to restore over 200 acres of estuary and wetlands located west of the Skokomish River and on either side of the Nalley Slough (see Figure 2). The proposed project footprint covers approximately 108 acres of publicly owned land located west of the Nalley Slough. The project footprint affects 4 parcels of land owned in fee by the City of Tacoma. The NFS will be required to certify its fee interest in the affected lands available for project construction, operation and maintenance. The project lands are subject to occasional tidal inundation from Hood Canal and seasonal flooding from the Skokomish River and Nalley Slough. Earthen dikes were built by a previous private landowner in an attempt to increase the agricultural utility of the land. The dikes are located on the west, north and east boundaries of the project footprint. The dike located near the west project boundary is outside the proposed project footprint because it is not certain whether the dike is entirely on NFS lands, and it is not needed to support the integrity of the project. Skokomish Tribe lands and tribal trust lands under Bureau of Indian Affairs (BIA) jurisdiction are located adjacent to the west and south boundaries of the project footprint. The dike near the north project boundary and the dike on the east boundary that border the Nalley Slough are both located inside the proposed project footprint. The north and east dikes will be breached after the proposed system of boardwalks and other project improvements have been completed.

An existing unpaved pathway provides seasonal access from the project footprint to the barrier islands that are located off shore to the north. The section of this unpaved path that is located on NFS fee-owned land is included in the proposed project footprint. The NFS and Skokomish Tribe are expected to construct a bridge/causeway and a section of elevated boardwalk as part of a separate, non-Federal project, which is expected to be completed prior to construction beginning on this estuary restoration project. The estuary restoration project will extend the elevated boardwalk from the center of the project footprint to the northern project boundary where it will connect to the anticipated non-Federal improvements.

Highway 106 is the nearest public right-of-way to the project footprint. Access to the project from Highway 106 will utilize Reservation Road, Nalley Road and Nalley Farms Road. The proposed access route is a paved surface 12-15 feet wide and 1.75 miles long. A perpetual road easement 24 feet wide and 1.75 miles long is proposed for ingress and egress to the project footprint for construction, operation and maintenance. An ownership issue with the access road is currently being resolved by the Skokomish Tribe, Mason County, and the NFS. The underlying owner of the access road is believed to be the Skokomish Tribe. It is not yet certain what type of property interest the tribe is able to provide to the NFS for access to the project footprint. Discussions on the access road issue are ongoing between the NFS, Mason County and the Skokomish Tribe and must be resolved prior to

advertising for construction. If the Skokomish Tribe is not able to convey a perpetual road easement to the NFS, a non-standard estate may be required. Non-standard estates require review and approval by Corps of Engineers Headquarters, which could take 1 to 6 months.

Until a Project Cooperation Agreement (PCA) is signed by the NFS and District Engineer, the NFS is under no obligation to acquire LERR in support of this project. However, because the NFS is currently addressing the road ownership/access easement issue, they should be informed of the risks associated with advanced land acquisition in anticipation of signing a PCA. Under such circumstances the NFS assumes full and sole responsibility for any and all costs, responsibility, or liability arising out of acquisition efforts. Generally, these risks include, but may not be limited to, the following:

(1) Congress may not appropriate funds to construct the proposed project;

(2) The proposed project may otherwise not be funded or approved for construction;

(3) A PCA mutually agreeable to the NFS and the Government may not be executed and implemented;

(4) The NFS may incur liability and expense by virtue of its ownership of contaminated lands, or interests therein, whether such liability should arise out of local, state, or Federal laws or regulations including liability arising out of CERCLA, as amended;

(5) The NFS may acquire interests or estates that are later determined by the Government to be inappropriate, insufficient, or otherwise not required for the project;

(6) The NFS may initially acquire insufficient or excessive real property acreage which may result in additional negotiations as well as the payment of additional fair market value to affected landowners which could have been avoided by delaying acquisition until after PCA execution and the Government's notice to commence acquisition and performance of LERR; and

(7) The NFS may incur costs or expenses in connection with its decision to acquire or perform LERR in advance of the executed PCA and the Government's notice to proceed which may not be creditable under the provisions of Public Law 99-662 or the PCA.

A Non-Federal Sponsor Acquisition Capability Assessment checklist will be completed with coordination between the NFS and the Seattle District Real Estate Division. The acquisition capability assessment will rate the NFS authority and

capability to provide the necessary real property interests for the proposed project. The NFS is a public utility that holds a fee interest over most of the proposed project footprint and has a staff with real estate knowledge and capability. The capability assessment task has been initiated and will be completed before the end of this calendar year, 2005.

The majority of excavated materials will be reutilized on-site. Any non-native materials that are not suitable or are in excess of what is to be reutilized on-site will be removed to an approved commercial disposal facility (Eells Hill Landfill, located at W501 Eells Hill Road, just north of Shelton). Construction staging will take place within the proposed project footprint. Navigable waters are not affected by the proposed project. Therefore, Navigational Servitude will not be exercised. According to the NFS, there are no active mining activities or plans for mining in the proposed project area.

High-voltage and low-voltage electrical power transmission lines cross the center of the project footprint from east to west. Proposed work includes improvements to the maintenance pads at the base of the high-voltage transmission line towers. The high-voltage power lines are owned and operated by the NFS. Therefore, improvements to the tower maintenance pads are considered construction tasks and will be cost-shared accordingly.

The low-voltage electrical power transmission lines are supported by wood/creosote poles and are aligned east-to-west across the project footprint. Public Utility District #1 of Mason County (PUD-1) is the owner of the low-voltage power lines and poles. PUD-1 access to the low-voltage power lines will likely be affected by increased inundation after the north and east levees are breached for this project. The increased inundation could have a negative impact on the function and operation of the low-voltage utility in its present alignment. In addition, the low-voltage utility line easement is an outstanding third-party interest that could potentially defeat the project purpose. Therefore, the NFS will need to either remove the easement and relocate the low-voltage utility line outside the project footprint, or subordinate the easement to the project purpose and replace the creosote wood poles with a material that can withstand the post-construction inundation of the project footprint. A Final Opinion of Compensable Interest will be provided by an Office of Counsel Real Estate Attorney, which will confirm whether PUD-1 has a compensable interest in the cost to relocate the low-voltage power lines/poles. The utility relocation work must be completed by the NFS prior to advertising for construction.

There are no known additional outstanding third party interests within the project footprint. However, if third party interests are revealed in the NFS title report that could defeat the project purpose, they will need to be removed, subordinated to the project purpose, or otherwise proven by the NFS in a documented risk assessment to not pose a threat to the project purpose.

According to the NFS, there are currently no active Federal projects or Federal lands within the proposed project footprint.

According to the NFS, an investigation to determine the presence of Hazardous, Toxic and Radioactive Waste (HTRW) was conducted in 1992 in conjunction with the City of Tacoma's purchase of several parcels including those lands affected by the proposed project footprint. HTRW items of interest were identified during the 1992 investigation and were fully remediated by 1994. Seattle District conducted an HTRW assessment that included a document review and site visit. No visual evidence of HTRW contamination was found in the project area during the site visit.

The Skokomish Tribe, Mason County, and the NFS own lands adjacent to the project area and fully support the proposed project objectives of estuary and wetland restoration. TPU and the Skokomish Indian Tribe are expected to sign a Memorandum of Understanding (MOU) regarding their respective roles and responsibilities in supporting the proposed project. Signing of the MOU must occur prior to signing of the PCA.

An informal valuation report was provided by Corps appraisal staff for planning purposes. The highest and best use of the project lands is determined to be marginal agricultural and/or seasonal recreational uses. The land is idle and appears to have been idle for many years. Ponded water, grass, weeds and brush dominate the landscape. There is no significant tree cover and the soils are very restrictive—not suitable for agricultural purposes. The potential cost for a fee interest in the project lands is estimated to be $1,500.00 per acre. The potential cost for a perpetual access road easement is estimated to be $600.00 per acre. The low-voltage line relocation and easement subordination is considered a part of the project LERR requirements. Estimated costs for the low-voltage line relocation work have not yet been determined. A 30% contingency amount is being utilized because of the uncertainty regarding relocation costs.

The following costs are estimated for project implementation, are based on the maximum footprint possible and will be re-evaluated along with current project assumptions in the next Pre-Award Phase of this project:

Baseline Cost Estimate for Real Estate (BCERE)

108 acres -- Fee Interest Lands	$162,000
5 acres – Perpetual Road Easement	$ 3,000
Total Lands & Damages	$165,000
NFS LERR Administrative costs	$ 13,000
Contingency (30%)	$ 54,000
Subtotal – NFS Lands, Damages & Admin. Costs	$232,000
Federal Review & Assistance	$23,000
Fed Contingency (30%)	$7,000
Subtotal – Federal Admin. Costs	$30,000
TOTAL LERR	**$262,000**

NOTE: The NFS will need to acquire and certify available for project purposes all necessary LERR prior to advertising for construction.

14. RELATIONSHIP TO OTHER STUDIES

Restoration actions would support recovery efforts for other intertidal restoration actions in the Pacific Northwest and the United States. Restoration actions would provide information for similar activities in Hood Canal and possibly Puget Sound. The value of this effort will only be realized through adequate funding of monitoring studies. The Puget Sound Nearshore Ecosystem Restoration General Investigation, a basin-wide program to recover ecosystem processes and habitats that have been altered or destroyed through development within the basin, is closely studying the project and will be basing future restoration efforts in Puget Sound on the success of this project.

15. ALTERNATIVES

Six alternatives were examined for their feasibility to develop the project's ecological outputs. Cost effectiveness and incremental cost analysis methodology were used in considering the alternatives. Plans were also reviewed qualitatively to assess benefits. See Appendix D for graphic representations of each alternative.

The six alternatives analyzed are as follows:

1) no-action alternative (without project alternative);

2) selective removal of various sections of the dike (6 locations), install culverts;

3) selective removal of various sections of the dike (6 locations), install wood boardwalk to towers (3000 LF), submersible road to N. Barrier Island to remain (900 LF), and remove existing roads (3000 LF);

4) full dike removal (5000 LF) with three lower elevation notches, install wood boardwalk to towers (3000 LF), submersible road to N. Barrier Island to remain (900 LF), and remove existing roads (3000 LF);

5) full dike removal (5000 LF) with three lower elevation notches, install wood boardwalk to towers (3000 LF), install wood boardwalk to approach to N. Barrier Island (900 LF), and remove existing roads (3900 LF); and

6) full dike removal (5000 LF) with three lower elevation notches, install concrete boardwalk to towers (3000 LF), install concrete boardwalk to approach to N. Barrier Island (900 LF), and remove existing roads (3900 LF).

Alternative 6 was selected to maximize saltwater-freshwater interchange, while protecting existing infrastructure (e.g., transmission towers and transportation routes) from wave action.

Within the selected alternative design, two alternatives were considered: 1) natural development, and 2) formation of intertidal channels with planting. The natural formation of channels was selected based on best professional judgment from restoration scientists evaluating the project designs.

16. ECONOMIC EVALUATION OF PROJECT ALTERNATIVES

16.1 Purpose

The following presents an economic evaluation of the environmental habitat restoration opportunities for Skokomish Estuary Restoration Phase 1, Puget Sound Washington. See Section 3.1, Project and Area Description, for information on study area.

16.2 Methodology

Methodology employed for this economic analysis is in accordance with current Principles and Guidelines and standard economic practices for environmental restoration studies. Evaluation of environmental restoration alternatives has been completed in conformance with *IWR Report 95-R-1 Evaluation of Environmental investments: Procedures Manual (May 1995).* The evaluation was completed using IWR-Plan, version 3.33. The period of analysis is 50 years. Costs were computed at October 2005 price levels.

16.3 Without Project Conditions

The methodology utilized to assess the quality of the habitat was based on two related criteria, wetland type and linear feet of tidal channels. These criteria were combined to produce a weighted score for each alternative. This evaluation methodology measures environmental impacts of the project in ecological rather then monetary terms. As a result, it is not possible to perform a direct benefit/cost analysis. Rather, the focus of this analysis is to determine the most cost-effective way to provide an array of environmental outputs.

The study area was divided into four sub-sections and four wetland types. Each sub-section is identified by the letters A through D and reflect the connectivity of the sub-section and the amount and type of tidal influences it will be exposed. Scores were assigned to the wetland type within each sub-section and summed to produce a weighted score. Wetland types capture the differences between regularly and irregularly flooded estuarine wetlands. Plus, restricted and unrestricted flooding where sediment inputs and mixing are improved by unrestricted flooding. The tidal channels were measured in linear feet within the wetland. It was assumed for the existing and future without project condition there would be no changes due to the dikes preventing the natural processes from occurring.

Table 2 below displays the incremental ecological scoring of the without project condition and the with project condition.

TABLE 2

SKOKOMISH ESTURAY 544 ESTUARY RESTORATION PROJECT

INCREMENTAL INPUTS FROM PROJECT ALTERNATIVES

ALTERNATIVE + Subwetland area	Wetland Type 1	2	3	4	Scores 1	2	3	4	TOTAL	Tidal Channel (linear feet)	Weighted Score (rounded)
Without Project Condition											
Alternative 1 No Action / Existing & Future Condition											
A	0	0	10	0	0	0	30	0	30	0	
B	0	0	0	0	0	0	0	0	0	0	
C	0	0	0	0	0	0	0	0	0	0	
D	0	0	0	0	0	0	0	0	0	0	
									30	**0**	**0**
With Project Conditions											
Alternative 2 Culverts											
A	10		14		10	0	42	0	52	5032	
B			12		0	0	36	0	36	727	
C	6		18		6	0	54	0	60	2090	
D	48		0		48	0	0	0	48	0	
									196	**7849**	**1,539,000**
Alternative 3 Selective Removal/Submersisble Rd											
A	10		14		10	0	42	0	52	5032	
B			12		0	0	36	0	36	727	
C	6		18		6	0	54	0	60	2090	
D	36		12		36	0	36	0	72	0	
									220	**7849**	**1,727,000**
Alternative 4 Full Dike Removal/Submersible Road											
A	10		14		10	0	42	0	52	6180	
B				12	0	0	0	48	48	3132	
C		6	18		0	12	0	72	84	2941	
D	36		12		36	0	36	0	72	0	
									256	**12253**	**3,137,000**
Alternative 5 Full Dike Removal/Wood Boardwalk											
A		10	14		0	20	0	56	76	6180	
B			12		0	0	0	48	48	3132	
C		6	18		0	12	0	72	84	2941	
D	36		12		36	0	36	0	72	0	
									280	**12253**	**3,431,000**
Alternative 6 Full Dike Removal / Concrete Brdwalk											
A		10	14		0	20	0	56	76	6180	
B			12		0	0	0	48	48	6069	
C		6	18		0	12	0	72	84	2941	
D		36	12		0	72	0	48	120	1563	
									328	**16753**	**5,495,000**

16.4 With Project Conditions

Six alternatives were evaluated, including the existing/no action alternative. Phase 1 of this multi-phase project is limited in scale to 108 acres because of real estate constraints and sponsor resources. Each of the project alternatives is a variation of a single basic plan. The basic plan consists of removing the dike and allowing an exchange of freshwater river flow and saltwater tides to reestablish wildlife habitat in the project area. Boardwalks will be constructed to maintain access to public utility personnel and Native American tribes to participate in their cultural and religious traditions.

See Section 15, Alternatives, for a detailed description of specific alternatives that were evaluated. See Appendix D for graphic representations of each alternative.

16.5 Environmental Restoration Benefits and Costs

As observed in other similar projects, once the project area is exposed to the tidal actions the area is expected to experience immediate and significant benefits. The scoring presented in Table 2 represents the average annual score for the alternative. Below, Table 3 displays the costs for each alternative and corresponding score. Each of the alternatives is stand alone and is not combinable with other alternatives.

TABLE 3

Skok Esturary 544
Cost Estimates

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Total Construction Cost	$ -	$ 64,500	$ 518,400	$ 697,000	$ 849,900	$ 1,095,600
LERRDs	$ -	$ 262,000	$ 262,000	$ 262,000	$ 262,000	$ 262,000
Total First Cost	**$ -**	**$ 326,500**	**$ 780,400**	**$ 959,000**	**$ 1,111,900**	**$ 1,357,600**
Interest During Construction (IDC)	$ -	$ 681	$ 3,262	$ 4,008	$ 4,647	$ 5,674
Gross Investment	$ -	$ 327,181	$ 783,662	$ 963,008	$ 1,116,547	$ 1,363,274
Annualized Costs (50 years @ 5 1/8%)	$ -	$ 18,269	$ 43,758	$ 53,773	$ 62,346	$ 76,123
O&M	$ -	$ 1,750	$ 1,750	$ 1,750	$ 1,750	$ 1,750
Monitoring*	$ -	$ 4,030	$ 4,030	$ 4,030	$ 4,030	$ 4,030
Total Annual Cost	**$ -**	**$ 24,049**	**$ 49,538**	**$ 59,553**	**$ 68,126**	**$ 81,903**
Estuary Restoration Score (rounded)	0	1,539	1,727	3,137	3,431	5,495

Note: Monitoring costs were adjusted to reflect present value.

16.6 IWR – Plan Results

IWR Plan evaluates environmental restoration projects by determining the most cost effective alternative or combination of alternatives, based on costs and estimated environmental benefits to be gained. There were no combinable

alternatives for this project. Incremental benefits and costs were calculated for comparable plans. Comparable plans include alternatives 3 and 4, and alternatives 5 and 6. Alternatives 3 and 4 allow for partial versus full dike removal. Alternatives 5 and 6 evaluate the differences in restricted and unrestricted water flows based the on type of boardwalk construction. Alternative 6 is the overall most expensive with the construction of concrete boardwalks and also has highest benefit score with the lowest incremental cost per unit, because it allows for better quality wetland and channel development. Alternative 6 is the best buy. Table 4 below provides a combined alternative comparison with the average and incremental costs and benefits.

TABLE 4

Total & Average Cost of all Plans (Ordered By Output)						
					Comparable Plans	
Alternative	**Benefits**	**Cost**	**Average Costs**		**Incremental Benefits**	**Incremental Cost per Unit**
1	0	$ -	$ -		0	$ -
2	1,539	$ 24,049	$ 15.63		1,539	$ 15.63
3	1,727	$ 49,538	$ 28.68		1,727	$ 28.68
4	3,137	$ 59,553	$ 18.98		1,410	$ 7.10
5	3,431	$ 68,126	$ 19.86		3,431	$ 19.86
6	**5,495**	**$ 81,903**	**$ 14.90**		2,064	$ 6.67

17. STUDY METHODOLOGIES

Project design studies are complete. Pre-construction studies and post-construction monitoring will follow established methodologies called for in the environmental permits. These methodologies will be described when the permits are issued.

18. VIEWS OF THE NON-FEDERAL SPONSOR

Tacoma Public Utilities (TPU) has agreed to become the non-Federal sponsor and to assume full responsibility for all future project related operation, maintenance, rehabilitation and replacement needs. A letter of intent is shown in Appendix A. Certain operation and maintenance responsibilities may be delegated to the Skokomish Tribes described in the memorandum of understanding (MOU).

19. VIEWS OF FEDERAL, STATE, AND REGIONAL AGENCIES

The U.S. Fish and Wildlife Service, NOAA Restoration Center, Hood Canal Salmon Enhancement Group, Washington State Governor's Puget Sound Action Team, Salmon Recovery Funding Board (SRFB), and Hood Canal Coordinating Council support the proposed action. These agencies view the project as the most

important project for ESA-listed Hood Canal Summer Chum. The project is also viewed as significant for ESA-listed Bull Trout and Chinook Salmon and for ESA proposed-listed Orca Whales. The USFW and NOAA are contributing funds to the Skokomish Tribe for a pedestrian bridge from the northern edge of the project to the North Barrier Island for tribal access after restoration. The Department of Ecology and Department of Natural Resources helped prepare the monitoring plan for the project. The SRFB provided state funds to the Skokomish Tribe so that they can contribute cash to support the NFS cost-share.

20. ENVIRONMENTAL COMPLIANCE REQUIREMENTS

Consultation under Section 7 of the Endangered Species Act, the National Historic Preservation Act and the Clean Water Act for potential impacts resulting from project construction has been started**.** The Biological Assessment (BA) was completed by the Skokomish Indian Tribe and Endangered Species Act (ESA) concurrence has been received from National Marine Fisheries Service (NMFS). Section 106 is being coordinated with the Tribal Historic Preservation Office (THPO). Concurrence is anticipated from the Tribal Historic Preservation Office (THPO) on a determination of "No Historic Properties Affected", conditional upon an approved cultural monitoring plan. See Appendix C for concurrence letters received. National Environmental Policy Act (NEPA) compliance will be completed when the Section 404 permit is issued. A screening level HTRW study was conducted to document potential risk of contaminants (see Appendix B).

21. COSTS AND BENEFITS SUMMARY

The total estimated project cost for the construction aspects of this project if all elements were to be implemented for Phase 1 is $1,247,000. The major costs associated with the project relate to construction road placement, excavation and hauling, and construction of the elevated boardwalk. The Corps prepared the estimate using MCACES computer program analysis of the sponsor's construction plans.

21.1 Project Benefits

The proposed action would restore 108 acres of salt marsh and over 2000 feet of tidal channel. Salmonid feeding and refuge habitat would be developed. Increased tidal interchange would foster nutrient uptake helping to reduce low dissolved oxygen levels in Hood Canal, while maintaining year-round access for the sponsor's crews to their high-voltage transmission lines and the Skokomish Tribe to culturally significant barrier islands.

21.2 Importance

Restoration of tidal marsh at Skokomish estuary will support recovery of Federally Threatened salmonid species (Chinook, chum and bull trout) and bald eagle, as well as improving water quality in the Hood Canal, and providing additional habitat for fish and shellfish species.

21.3 Economic Benefits

Economic benefits associated with the proposed action are incidental in nature. Although commercial and/or recreational (including tribal) fisherman will harvest some valued species originating from the project site, the economic input into these industries would not be discernible.

21.4 OMRR&R Requirements

The future operation and maintenance requirements will consist primarily of repair and maintenance of the boardwalk, if required. Estimated annual cost of OMRR&R is $1,000 to $2,500 and will be paid by TPU. Costs for O&M activities will be further refined during the pre-award phase.

22. SCHEDULE

Combined Phase (Feasibility & Plans &Specifications)	June 2003 - April 2006
Execute PCA	March 2006
Sponsor Relocation of Utilities	March 2006 – April 2006
Advertise for Construction Contract	May 2006
Award Construction	May 2006
Initiate Construction	June/July 2006
Complete Construction	November 2006
Annual Monitoring	Fall 2007-Fall 2010
Long-term Monitoring	Fall 2015

23.1 Monitoring

Monitoring costs are estimated to be approximately $16,000 per year and will be undertaken on a yearly basis for five years for a total of $80,000. In addition, at year 10, another year-long monitoring effort (estimated at $16,000) should be undertaken to check marsh restoration progress. Therefore, the total monitoring cost is $96,000. Long-term monitoring is important for assessing the value of complete dike removal versus selective breaches. Monitoring details are being coordinated with the non-Federal sponsor, other agencies and tribes and are described in the draft monitoring plan. Monitoring costs that can be cost-shared shall not exceed 1% of the total project costs, an amount currently estimated to be

$16,000. Costs beyond the 1% limit will be covered by the other Federal agencies and sponsor at their cost.

23.2 Maintenance

Maintenance costs are borne by the sponsor and are estimated to be between $1,000 and $2,500 per year to maintain the boardwalk structures.

24. FINANCIAL DATA (PROJECT COSTS IN THOUSANDS)

Financial Project costs (fully funded)

Phase	PROJECT FUNDING						Total Project Costs (rounded)
	Total Non-Fed Cost	Federal Cost					
		FY05	FY06	FY07	Balance	Total Fed Cost	
Planning & Design	$0 – see Note 1	$ 82,000	$63,000	$0	$0	$175,000 – see Note 2	$175,000
Construction	$342,000	$0	$840,000	$39,000	$10,000	$900,000	$1,201,000
LER	$232,000		$30,000				$262,000
MONITORING	$85,000			$11,000			$96,000
TOTAL	$659,000	$82,000	$933,000	$50,000	$10,000	$1,075,000	$1,734,000

Notes:

1) Report and Plans and Specifications are initially Federally Financed, and costs distributed as part of the non-Federal share of project costs during implementation.

2) Project scoping costs in the amount of $10,000 were funded from the federal account at the program level in FY04 and are not included in the project design and implementation costs to be cost-shared, nor are they shown in this table.

Non-Federal Requirements:

LERRD	$232,000
Cash	$427,000
Work-in-kind	$0
Annual OM&R	$2,500
Monitoring (10 yr)	$85,000

25. FEDERAL ALLOCATIONS TO DATE

Combined Ecosystem Restoration Report and Plans and Specifications	$96,000
Pre-award phase	$0
Implementation (Construction)	$0
Monitoring	$0

Appendix A

Key Correspondence

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TACOMA POWER

3628 South 35th Street
Tacoma, Washington 98409-3192

TACOMA PUBLIC UTILITIES

August 3, 2004

Colonel Debra Lewis
U.S. Army Corps of Engineers
Seattle District
4735 E. Marginal Way S.
Seattle, WA 98134-2385

Dear Colonel Lewis:

In the spring of this year, the Skokomish Tribal Nation approached Tacoma Power requesting the development of a partnership to pursue the resources necessary to initiate restoration of the Skokomish River estuary. Specifically, this partnership would be established to meet requirements of the Section 544 Puget Sound and Adjacent Waters Restoration Program (PSNRP) as Tacoma holds ownership to the land on which the project is proposed. Tacoma Power intends to implement a memorandum of understanding to formalize this partnership pending content review of the Project Cooperative Agreement with the USACE.

It is Tacoma Power's intent to investigate participation in PSNRP as eligibility of the Section 544 authority allows in order to assist the Tribe in meeting its restoration goals. The PSNRP is a welcomed addition to this effort.

Sincerely,

Debbie C. Young
Natural Resources Manager

Cc: Bernard Hargrave, Jr., USACE
Pat McCarty, Tacoma Power
Marc Wicke, Tacoma Power
Keith Dublanica, Skokomish Tribal Nation

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Skokomish Indian Tribe

Tribal Center (360) 426-4232

N. 80 Tribal Center Road **FAX (360) 877-5943** **Skokomish Nation, WA 98584**

April 25, 2005

Lori Morris/ Mike Scuderi
Army Corps of Engineers
Seattle, WA

Re: Skokomish tribal interest in continuing accessing to jetty/island

Dear Lori and Mike:

As per your request, I'd like to take this opportunity to clarify the Skokomish Indian Tribe's interest in continuing access to the jetty, located north of the proposed estuary /salt marsh restoration project, referred to as the Nalley Ranch. This site is encompassed within the boundaries of the Skokomish Indian Reservation.

As you are aware, this particular site is part of the area where Tribal members continue to exercise their treaty rights as identified in the 1855 Treaty of Point No Point, and affirmed in *US v Washington,* These activities continue to take place, both on the reservation and in the usual and accustomed area (U and A). Access to this particular site continues for specific cultural activities, and includes fishing, shellfish harvesting, gathering of plants for weaving and medicinal purposes, and is ongoing. Certain ceremonies take place throughout the year by Tribal members utilizing this landscape. A discussion with Tribal Manager and a Council member this afternoon concurs that restricting access would prove to be a hardship to Skokomish community members.

The Tribe appreciates the support the Army Corp is pursuing for this very worthy project, one that addresses salmon recovery and cultural protection, maintains Tribal access, as well as addresses the disturbing trends of Hood Canal dissolved oxygen. I thank you for your consideration in this matter. Please contact me if questions or comments.

Sincerely,

Keith Dublanica, Director
Skokomish Natural Resources

cc: Tribal Council
Larry Goodrow, Tribal Manager
Brian Collins, Tribal Attorney
Congressman Norm Dicks

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Appendix B

Hazardous Material and Toxic Waste (HTRW) Assessment

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CENWS-EC-TB-ET 22 Sep 2005
Henzi/6950

MEMORANDUM for: PM-CP (Yorozu)

SUBJECT: Assessment of Skokomish Estuary Project Area for Potential Hazardous, Toxic, or Radioactive Waste (HTRW) Contamination

1. Introduction. Support was requested from the Environmental Engineering and Technology Section (ET) to provide an assessment of potential contamination at the Skokomish estuary in Skokomish Nation, Washington. The estuary is the site of a river dike removal and ecosystem restoration project that will be undertaken by the U.S. Army Corps of Engineers (USACE) for Tacoma Public Utilities (TPU). The purpose of the assessment is to ensure that any HTRW issues are addressed before project construction activities begin. A preliminary document review and site visit were conducted.

2. Regulatory Guidance. Per Engineer Regulation (ER) 1165-2-132, *Water Resource Policies and Authorities, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects* (1992), HTRW is defined as a "hazardous substance" under the Comprehensive Environmental Response, Compensation and Liability Act, which in turn includes hazardous substances under the Resource Conservation and Recovery Act, the Clean Water Act, the Clean Air Act, and the Toxic Substance Control Act. Based on this definition and the site visit conducted on September 9, 2005, there appears to be no visible HTRW contamination at this site.

3. Preliminary Document Review. Prior to the site visit TPU provided documents pertaining to cleanup actions that were originally thought to have occurred in the project area in the early 1990s, as maps in the documents encompass the current project area. The list of documents reviewed is provided in Attachment A. After reviewing the documents, it became apparent that they all pertained to a former residential/farm area ("Nalley Farm") that was located just east of the Nalley Slough and north of the Skokomish River – and consequently <u>not</u> in the current project area. Therefore, the results of the cleanup actions are expected to have no impact on the current project. However, a brief review of the documents is provided below, in case the Nalley Farm area should ever be considered for redevelopment.

The document review indicated that leaking underground storage tanks on the property had been closed and that associated contaminated soil had been cleaned up. Monitoring wells were also installed on the property, and the Draft Cleanup Action Report contains monitoring data for the wells. The last recorded monitoring action occurred on December 15th, 1993 and indicated that the only remaining exceedances of analytes sampled (total petroleum hydrocarbons (TPH), benzene, ethylbenzene, and xylenes) were for benzene and TPH. The benzene value at well #15 was 13 micrograms/liter, and the current Model Toxics Control Act (MTCA) Method A level (for unrestricted use of the site, such as for drinking water) is 5 micrograms/liter. The TPH value at well #16 was 980 micrograms/liter, the current MTCA Method A level is 800 micrograms/liter. It would be recommended to take another round of sampling in the future to

confirm that all cleanup levels have been met if the possibility exists for using this site for drinking water.

4. Site Visit Summary. Veronica Henzi (environmental engineer) and Tim Sullivan (cost engineer) arrived at the office of Keith Dublanica (director, Natural Resources Department for Skokomish Indian Tribe) at approximately 9.30 a.m. on September 9, 2005. They also met Marty Ereth and Jack Turner, associates of Mr. Dublanica. From there Ms. Henzi, Mr. Sullivan, Mr. Dublanica, Mr. Ereth, and Mr. Turner drove onto the estuary site, where they were met by Rich Geiger (engineer, Southwest Conservation District). The purpose of the site visit was to look for any visible evidence of HTRW contamination (or potential contamination) in the project area. Because the estuary is large, the observations were limited to what could be seen by walking along the water's edge and along the various dirt roads that exist on the estuary. In brief, no visible evidence of HTRW contamination was found in the project area. However, because dumping of solid waste appears to be an issue, the observations pertaining to solid waste will be documented in this memorandum. In addition, a brief discussion of potential removal of creosoted pilings in the area will be included.

The site visit began by driving along the single access road that leads from reservation land onto the estuary. Garbage dumping was evident along the access road (e.g., appliances, trash bags), and no barricade currently exists to prevent access to the estuary. Consequently, dumping was also evident on the estuary in the project area. The team first walked along the southwestern road in the project area and observed a TV monitor, a transmission, a kid's pool and cooler, and an abandoned vehicle (see photos 1, 2, 3, and 4 in Attachment A). Mr. Dublanica also indicated that a few sunken car bodies were near the shore, but they were not visible during the site visit due to high tide.[1] Mr. Dublanica did mention that an EPA/Tribal Housing Authority grant had been approved to remove solid waste from the reservation, including waste found in the project area (on land). Thus, the solid waste on land is expected to be removed prior to project construction.

To view the entire estuary, the team then drove to the very northern tip of the estuary, which is currently outside the project area and on Washington Department of Fish and Wildlife land. A colorful sheen was observed on the beach (see photo 5), but it had no odor and therefore was thought to be of biological origin. Because the sheen was very small (approximately 1 foot by 6 inches), probably biological, and outside of the project area, it was expected to have no impact on the project.

After viewing the northern tip of the estuary, the team then drove to the dike area and walked along the dikes. Both the east and west dikes appeared free of any HTRW contamination. For documentation, the west dike currently has a "cut" through it, which may need to be bridged during construction (see photo 6), and has old tidal gates (see photo 7), which may need to be removed. The east dike looked intact.

[1] If these cars would need to be removed as part of the construction activities, then this may fall under USACE jurisdiction. The USACE is authorized by Section 19 of the River and Harbors Appropriation Act of March 3, 1899 to remove sunken vessels and similar objects if they are determined to be obstructions to navigation (ER 1105-2-100, Planning Guidance Notebook, 2000).

The final area observed during the site visit was the waste area, a 4.9-acre site used primarily for composting fish carcasses. Waste concrete heaps were also present on site and were assumed to be the remnants of a concrete building (see photo 8). No visible HTRW contamination was evident in the waste area.

The issue of removing and disposing of creosoted pilings also came up during the site visit. While walking around the project site Ms. Henzi noticed small creosoted utility poles, which are not identified on the site drawings, crossing the estuary. Mr. Geiger indicated that the Mason County Public Utilities District (PUD) #1 would eventually like to replace the creosoted poles with fiberglass poles. It is assumed that the Mason County PUD would take care of off-site disposal of the poles. As a separate issue, Mr. Dublanica indicated that he was considering removing some old creosoted pilings in the water (see photo 9) in an effort to return the estuary to its natural condition. Since the poles are creosoted, they would need to be disposed of properly. This issue should be revisited prior to removal of the poles.

4. Conclusions and Recommendations. No visual evidence of HTRW contamination was found in the project area during the site visit. Based on personal observations and discussion with local staff, the main waste issue in the project area is uncontrolled solid waste dumping. Although the amount of solid waste is minimal in comparison to the overall size of the project area, it may present a hazard if, for example, abandoned cars were to block the access roads to the specific project areas (the roads are narrow). Recommendations are as follows:

- Follow-up with Mr. Dublanica regarding the EPA/Tribal Housing Authority grant for solid waste removal is recommended prior to the start of construction.
- Regarding the creosoted pilings in the water, methods for properly reusing or disposing of them should be investigated prior to their removal.
- Although the former residential/farm area ("Nalley Farm") where cleanup actions were performed in the 1990s is <u>not</u> part of the current (Phase I) project area, if this area were to be used in the future for drinking water, then groundwater sampling may be necessary.

Attachment A – Documents Reviewed

The following documents were provided by TPU in August 2005 for review. All documents were prepared by DOWL Engineers:

1. Site Characterization Report Gasoline LUST Site, Nalley Farm, Mason County, Washington. Volume One. March 1992, updated May 1992.

2. Site Characterization Report Gasoline LUST Site, Nalley Farm, Mason County, Washington. Volume Two. March 1992, updated May 1992. NOTE: Volume Two contains only appendices of photos, lab data, and the following documents:
    a. Sampling Plan, Underground Storage Tank Closures at Nalley Farm, November 1991.
    b. Site Assessment Report, Gasoline Underground Storage Tank Closure at Nalley Farm, Mason County, Washington, January 1992.
    c. Spill Release/Investigation Work Plan, Nalley Farm, Mason County, Washington, January 1992.
    d. Same as c. above, "1st Addition, January 1992."
    e. Same as c. above, "2nd Addition, February 1992, updated March 1992."

3. DRAFT Cleanup Action Report, Gasoline LUST Site at Nalley Farm, Mason County, Washington. Nalley Farm, Mason County, Washington. Volume 1. March 1994. (NOTE: Volume 2 is missing).

4. Site Assessment Report Fuel Oil Underground Storage Tank Closure at Nalley Farm, Mason County, Washington. March 1992.

5. Site Assessment Report Underground Storage Tank Closure & Stained Soils at 5 Bay Garage Nalley Farm, Mason County, Washington. December 1991, updated April 1992.

Attachment B– Site Visit Photos

SITE VISIT PHOTOS

Photo 1. Defunct TV monitor – southwestern project area

Photo 2. Abandoned transmission – southwestern project area

Photo 3. Cooler and kids' pool – southwestern project area

Photo 4. Abandoned vehicle – southwestern project area

Photo 5. Sheen (biological assumed) – outside of project area at very northern edge of estuary

Photo 6. Cut in west dike

Photo 7. Old tidal gate along west dike

Photo 8. Waste concrete (and decaying fish carcasses)

Photo 9. Old pilings in channel

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Appendix C

Environmental Concurrence

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APPENDIX E

Skokomish Indian Tribe

Tribal Center (360) 426-4232

N. 80 Tribal Center Road **FAX (360) 877-5943** **Skokomish Nation, WA 98584**

Tribal Historic Preservation Office Statement of Concurrence of Gary Wessen summary (attached)

RE: Possible Archaeological Impacts and Recommendations Associated with the Nalley Farm Dike Removal Project

The Skokomish Tribal Historic Preservation Office (THPO) has reviewed the summary comments provided by Gary Wessen (below) related to the proposed restoration project. This project involves dike and levee removals at the Nalley Ranch area within the Skokomish Indian Reservation. Upon the review of Gary Wessen's comments, (who has provided similar assistance to the Skokomish on varied sites), the THPO concurs with the "moderate" sensitivity of the site, and the relative integrity of the dikes and levees. Though the source of dike material may be from adjacent borrow pits, there is not expected to be any in situ findings, and parent or native material is not expected to be exposed. However, cultural observations are intended throughout the project and any activities will "cease and desist" if artifacts are observed, with appropriate notification to THPO and SHPO immediately provided.

From: Delbert Miller THPO: _____ ***February 1, 2005***

I have reviewed the materials you have provided me and other documents in my possession regarding possible archaeological impacts associated with the Nalley Farm Dike Removal Project. There are no recorded archaeological sites at, or close to this project area. However, at least one recorded site is known along the Anas Bay shoreline a little further to the west and there are oral-historical accounts of Twana activities throughout this area. As such, the Archaeological Sensitivity Model developed recently by the Skokomish THPO rates the sensitivity of this project area as "Moderate".

I am not sure that I have a complete picture of all of the proposed ground-disturbing impacts, and how they will be accomplished, but it is relatively clear that much of the proposed impacts will affect fill sediments that were used to construct the dikes. These deposits have no potential to contain intact archaeological sites. I don't think that anyone knows precisely where sediments used to construct the dikes came from, but I think that it is safe to assume that they were probably obtain from a relatively nearby source, or sources. This opens the possibility that one or more nearby archaeological sites were used as quarry stock to build the dikes and - - under such a scenario - - archaeologically materials (including artifacts and, potentially, human remains) could be present in the dikes. Mind you, I am not suggesting that I think that this is likely. Rather, I am acknowledging that, under the circumstances, it is possible. I really have no way of assessing its likelihood. There is also the matter of the native soils underneath the dikes. I would expect that impacts to these underlying deposits will probably be relatively limited, but it is probable that some degree of disturbance will occur. Presently, we have no idea what is under the dikes and can only note that our model rates the sensitivity of this project area as "Moderate".

If cultural resource management activities are to be undertaken in association with this effort, they should probably occur in the form of monitoring. Whether monitoring of the removal of the fill sediments used to build the dikes is really warranted, is difficult to say. Typically, off reservation in Washington State, this type of action would not be monitored unless there were clear indications that archaeological materials were likely to be present. I don't think that we can really say that in this case. If there were a way to learn more about specifically where the fill came from, that would be helpful.

Beyond this, I can only say that it depends upon the Tribe's comfort level. If you really wanted to be cautious, you could monitor the effort, but I would have to say that - - based upon what we know now - - its probably more likely that we wouldn't see anything significant if this portion of the effort was monitored. Monitoring the exposure of native soils underneath the dikes is a somewhat different matter. To me, this should probably be a higher priority because these deposits could contain potentially intact archaeological deposits. We simply have no real knowledge of what's there.

In sum, I think that monitoring the exposure of native soils underneath the dikes should be the priority. If you were only going to monitor part of the effort, this is the part I would recommend. If you want to be really careful, you could go with monitoring everything, but you should understand that the dike sediments themselves are - - probably - - significantly less likely to contain cultural materials.

I hope you find this discussion helpful. If you have any questions, need further information, or if there is anything else that I can do to help, please do not hesitate to contact me.

From: Gary Wessen Date: January 13, 2005

AUG 16 2005

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

NMFS Tracking No.:
2005/03563

August 10, 2005

Michelle Walker
Chief, Regulatory Branch
Department of the Army
Seattle District, Corps of Engineers
Seattle, WA, 98124-3755

Re: Endangered Species Act Section 7 Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the proposed Skokomish Estuary/Salt Marsh Restoration, Mason County, Washington. COE No. 200401201 HUC 17110017016, Skokomish River.

Dear Ms. Walker:

This correspondence is in response to your request for consultation under the Endangered Species Act (ESA). Additionally, this letter serves to meet the requirements for consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

Endangered Species Act

The National Marine Fisheries Service (NMFS) has reviewed the Biological Evaluation (BE) received on June 23, 2005. You have made the determination of "may affect, not likely to adversely affect" for Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*) and Hood Canal summer-run chum (*O. keta*). Also you have made the determination of "not likely to destroy or adversely modify proposed critical habitat". NMFS has considered the determinations of effects under section 7(a)(2) of the ESA, and its implementing regulations (50 CFR Part 402) and concurs with your determinations. We believe that sufficient information was provided to determine the effects of the proposed project on federally-listed species and proposed critical habitat. Our concurrence is based on information and conservation measures described in the BE. NMFS assumes that the US Army Corps of Engineers (COE) will include all conservation measures therein as part of the project permit.

The proposed project is the restoration of 104 acres of Skokomish River salt marsh. The project is located within the Skokomish Indian Reservation where the Skokomish River flows into Hood Canal, near Union, Mason County. The proposed project consists of the removal of dikes, tidegates, levees, seawall, some grading including filling of borrow ditches, the construction of a boardwalk, removal of interior roads, construction of a new access road on the Western dike, construction of elevated pads and fencing around existing Tacoma Public Utilities transmission towers, and improvement of approximately 1000 linear feet of driveway for access and parking. The construction will be phased to ensure the restoration area inside the diked area is prepared

for tidal inundation before dike removal. Total construction time is expected not to exceed 3.5 months, with interior restoration area construction beginning about one month before the beginning of the Hydraulic Project Approval window. Impacts include short term turbidity during and immediately after dike breaching.

NMFS has determined the effects of the proposed project to be discountable because the presence of listed salmonids within the dike system is unlikely. Currently the diked area does not provide suitable habitat for juvenile and adult salmonids due to the lack of tidal exchange and impediments to fish movement though the dike and tide gate system. Furthermore, constraining project timing will minimize the probability of listed species presence in the adjacent water bodies. Any water quality effects in nearby Nalley Slough and the Hood Canal nearshore are likely to be insignificant because the project includes appropriate construction sequencing, and contaminant and sediment control measures will be implemented.

Critical Habitat Determination

NMFS proposed to designate critical habitat for this ESU on December 14, 2004, (69 FR 74572). Critical habitat includes the stream channels within the proposed stream reaches, and includes a lateral extent as defined by the ordinary high-water line (33 CFR 319.11). In estuarine and nearshore marine areas critical habitat is proposed to include areas contiguous with the shoreline from the line of extreme high water out to a depth no greater than 30 meters relative to mean lower low water. The Skokomish River and Hood Canal nearshore in the project area have been proposed as critical habitat for Puget Sound Chinook and Hood Canal chum. Because the project will occur in the estuary, applicable Primary Constituent Elements (PCEs) proposed for the critical habitat are:

1. Freshwater Freshwater migration corridors free of obstruction and excessive predationwith water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

2. Estuarine areas fee of obstruction with water quantity, water quality and salinity conditions supporting juvenile and adult physiological transition from fresh to salt water, natural cover, submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels and juvenile and adult forage, including aquatic invertebrates and fishes supporting growth and maturation.

3. Nearshore marine areas free of obstructions with water quality and quantity conditions and forage including invertebrates and fishes supporting growth and maturation, natural cover, submerged and overhanging logs, aquatic vegetation, large rocks and boulders.

NMFS has analyzed the potential impacts of the project on proposed critical habitat and the PCEs. NMFS has determined that the impacts to these PCEs will be insignificant or discountable, because appropriate construction sequencing and contaminant and sediment control measures will be implemented. These best management practices will limit the increase in turbidity to a short term impact that is not expected to have any lasting effect on critical habitat.

Overall the proposed project is expected to result in substantial benefits to rearing salmonids. Thus, NMFS concurs with your determination that the proposed project "will not result in adverse modification" of Puget Sound Chinook and Hood Canal chum salmon proposed critical habitat.

This concludes informal consultation in accordance with 50 CFR 402.13 and informal conference pursuant to the regulations implementing the ESA, 50 CFR 402.10. The COE must re-analyze this ESA consultation if (1) new information reveals effects of the action that may affect listed species in a way not previously considered; (2) the action is modified in a manner that causes an effect to the listed species or critical habitat that was not previously considered; or (3) a new species is listed, or critical habitat designated, that may be affected by the identified action.

Magnuson-Stevens Fishery Conservation and Management Act

Federal agencies are required, under section 305(b)(2) of the MSA and its implementing regulations (50 CFR 600 Subpart K), to consult with NMFS regarding actions that are authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat (EFH). The MSA section 3 defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." If an action would adversely affect EFH, NMFS is required to provide the Federal action agency with EFH conservation recommendations (section 305(b)(4)(A)). This consultation is based, in part, on information provided by the Federal agency and descriptions of EFH for Pacific salmon contained in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (August 1999) developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce (September 27, 2000).

The proposed action is described within the BE. The proposed action includes habitats which have been designated as EFH for various life stages of Chinook, coho, and Puget Sound pink (*O. gorbuscha*) salmon.

EFH Conservation Recommendations: Because the habitat requirements (*i.e.*, EFH) for the MSA-managed species in the action area are similar to that of the ESA-listed species, and because the conservation measures that the COE included as part of the proposed action to address ESA concerns are also adequate to avoid, minimize, or otherwise offset potential adverse effects to designated EFH, conservation recommendations pursuant to (MSA section 305(b)(4)(A)) are not necessary. Since NMFS is not providing conservation recommendations at this time, no 30-day response from the COE is required (MSA section 305(b)(4)(B)).

This concludes consultation under the MSA. If the proposed action is modified in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations, the COE will need to reinitiate consultation in accordance with the implementing regulations for EFH at 50 CFR 600.920(l).

We appreciate your efforts to comply with requirements under the ESA and the MSA. If you have questions, please contact Stephanie Ehinger of NMFS's Washington State Habitat Office at (360) 534-9341, or at Stephanie.Ehinger@noaa.gov.

Sincerely,

D. Robert Lohn
Regional Administrator

cc: Olivia Romano

Appendix D

Alternatives

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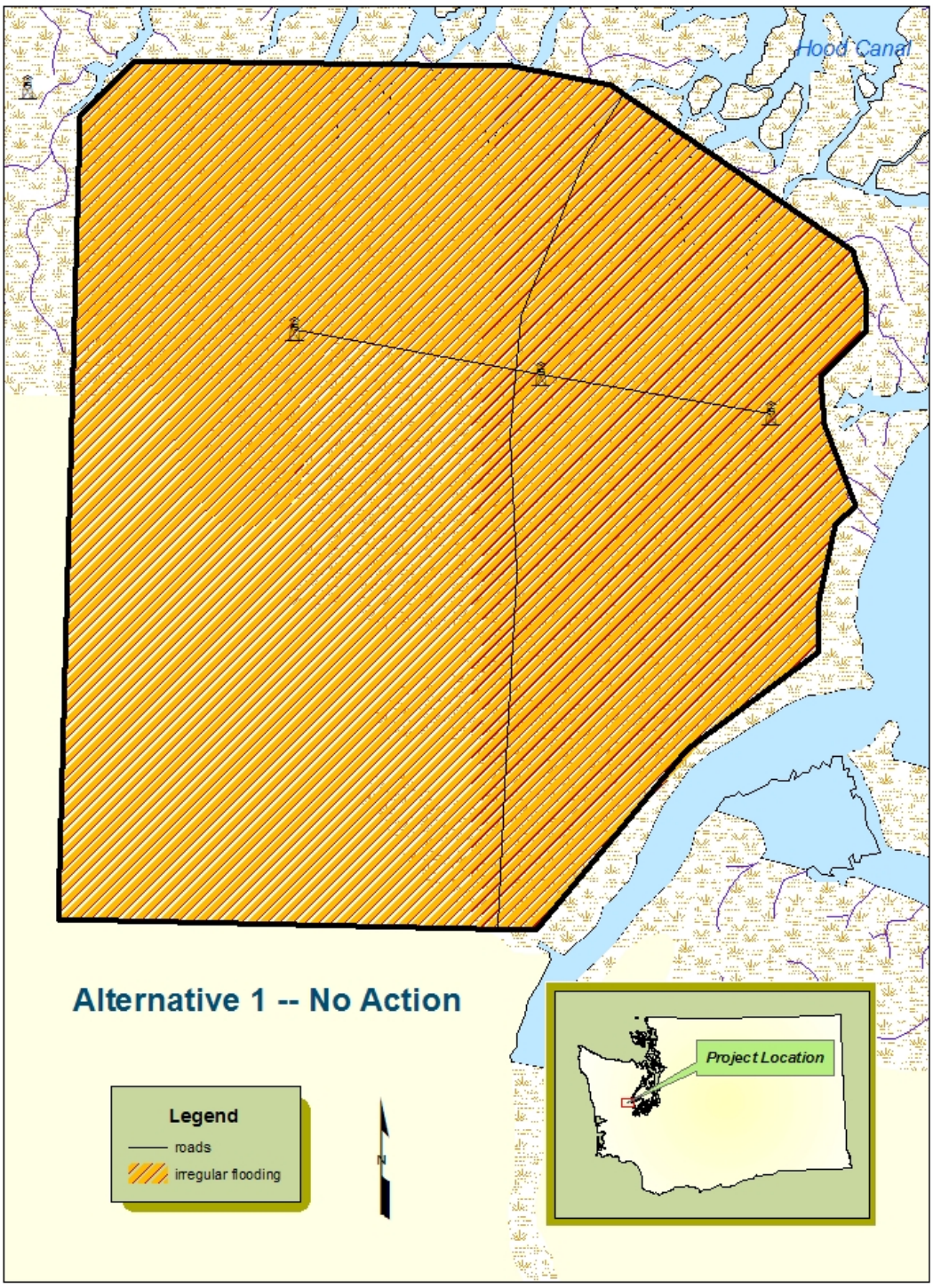
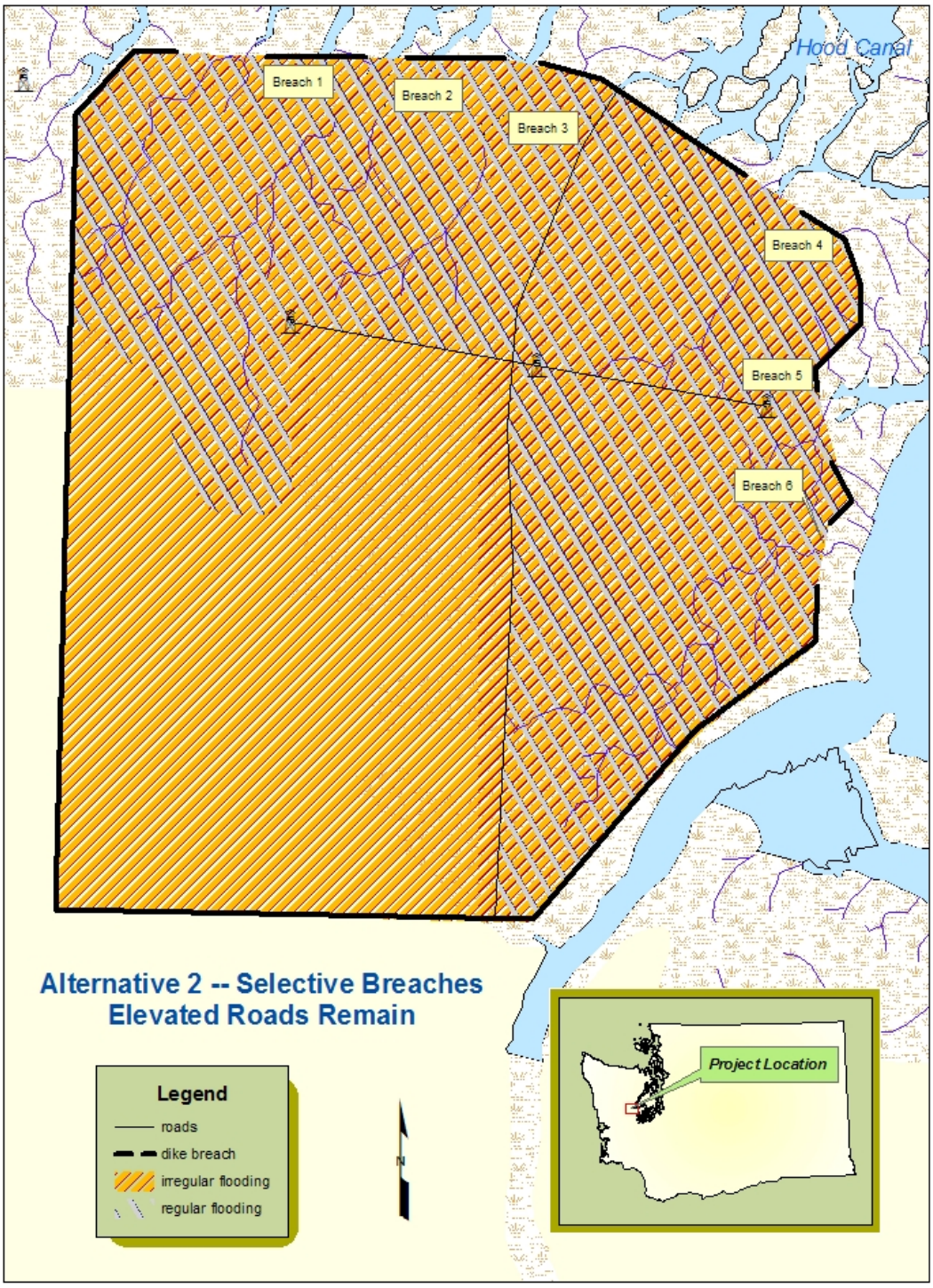
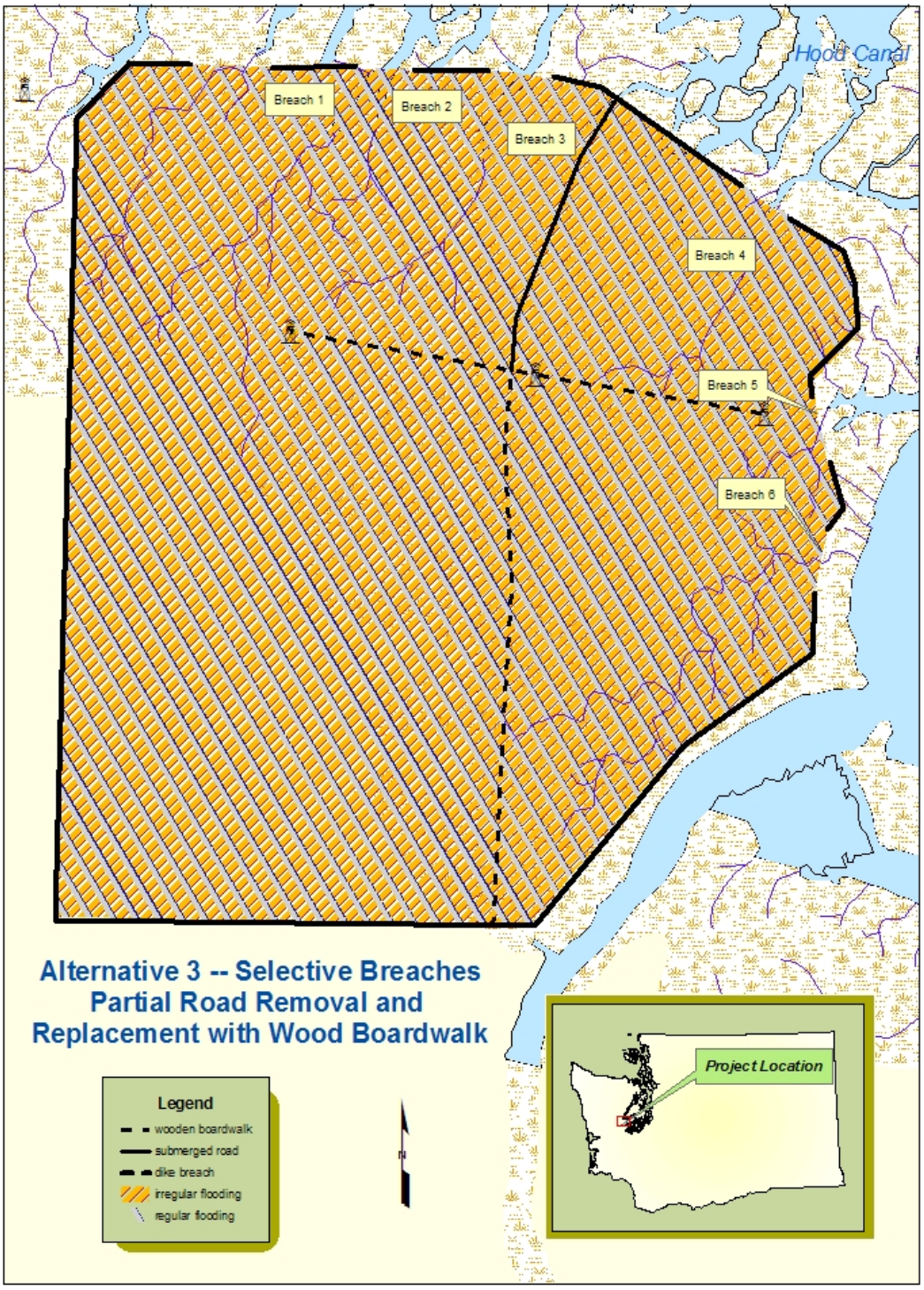
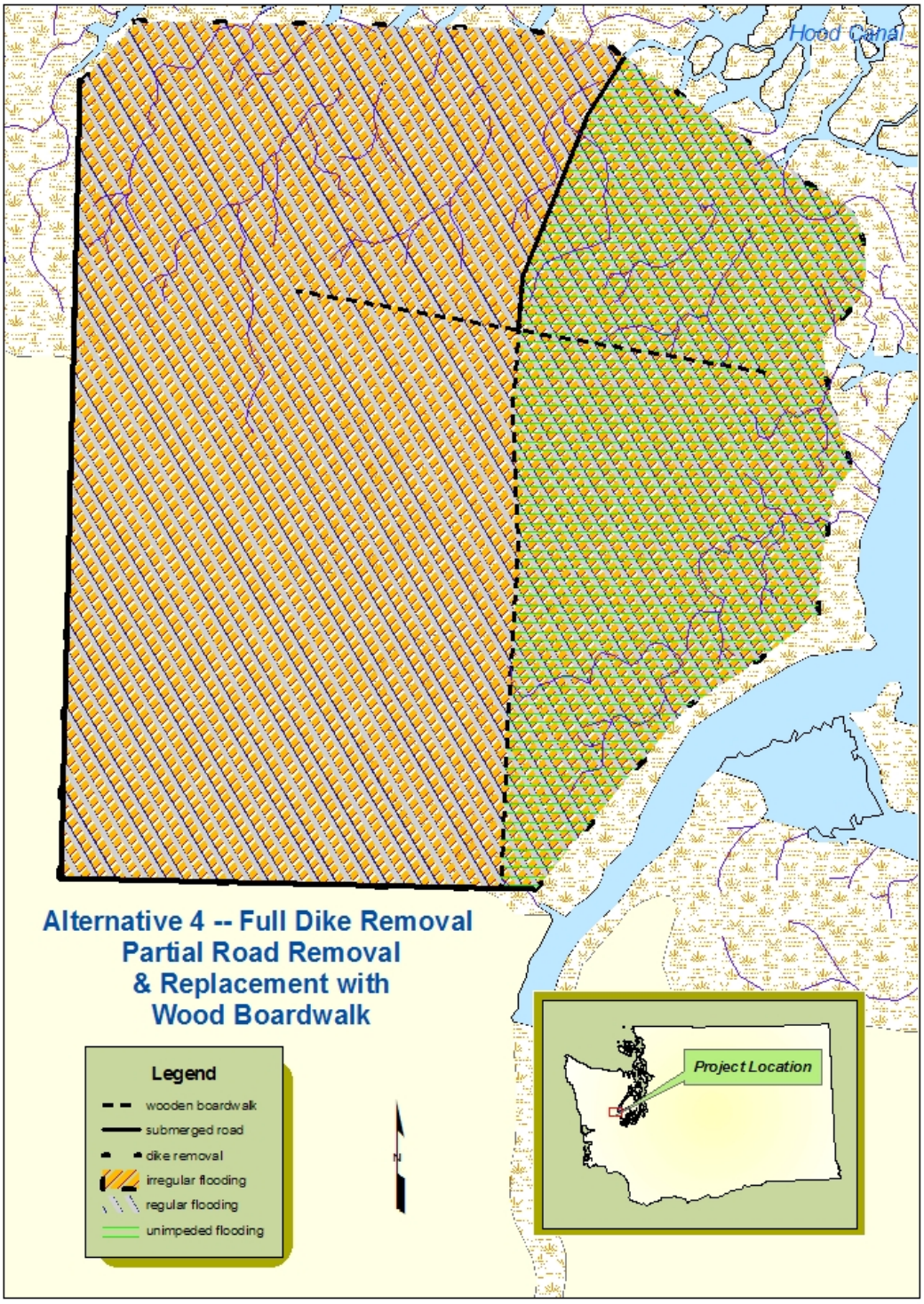
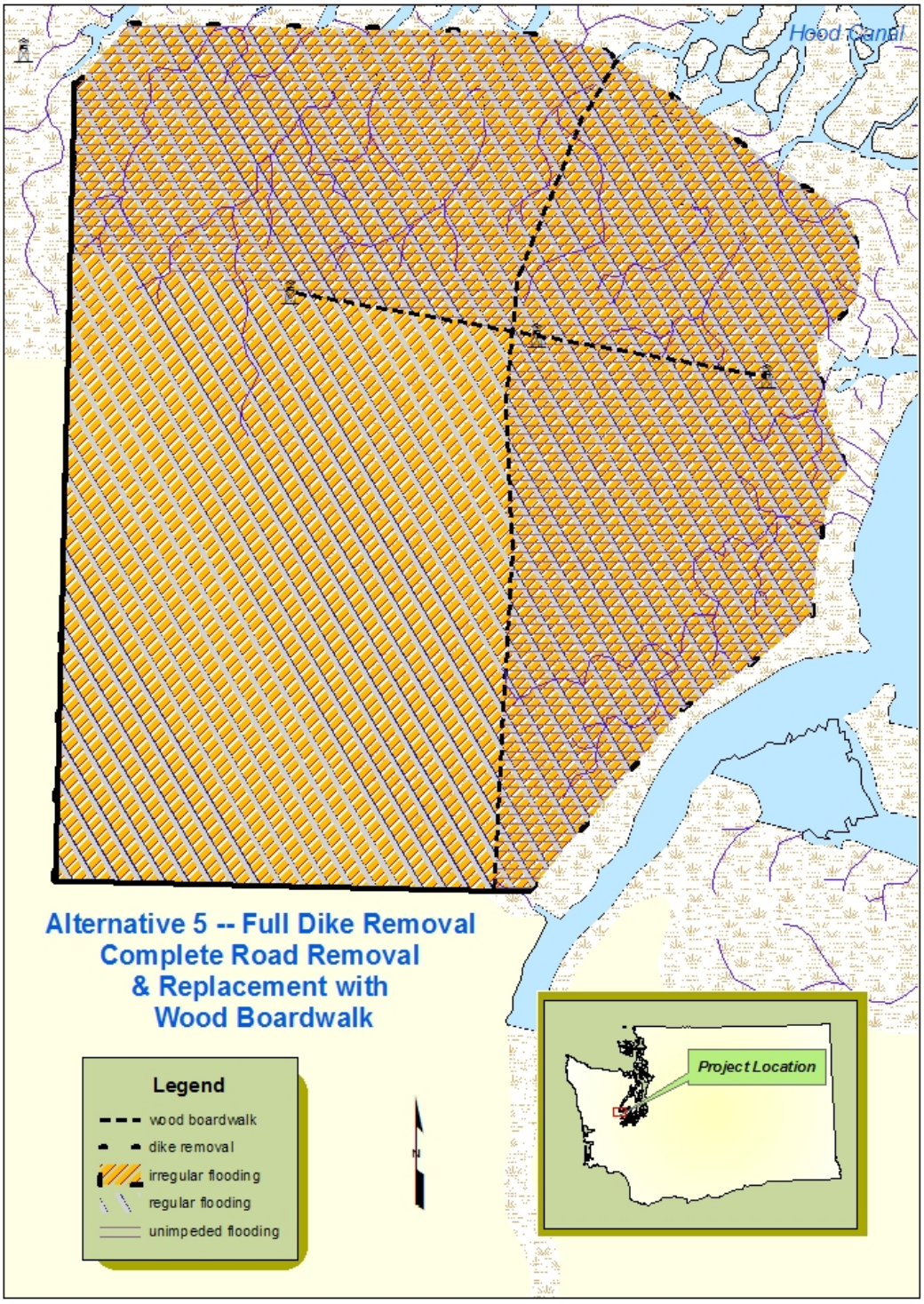
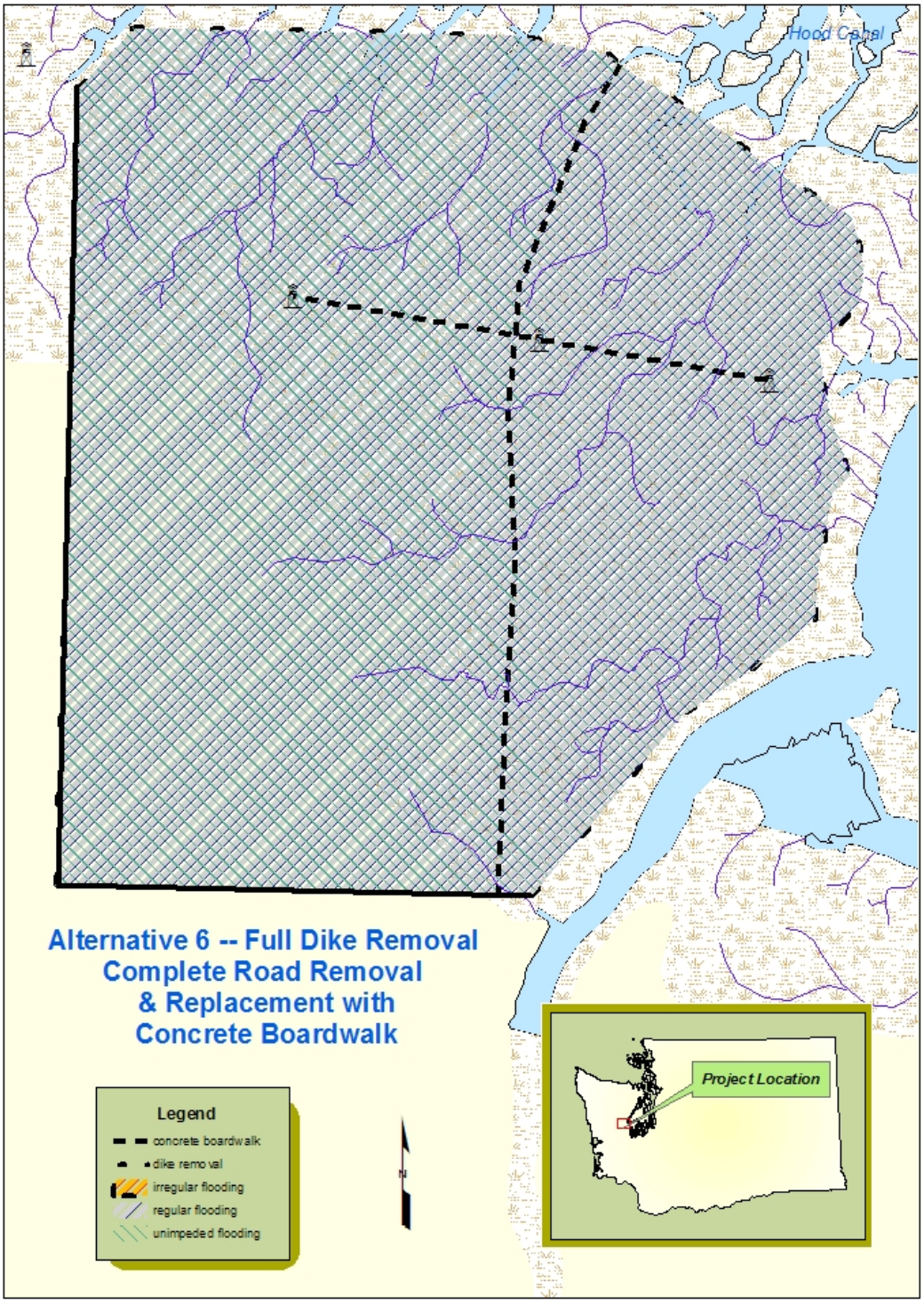

Hood Canal
Alternative 1 -- No Action
Legend
roads
irregular flooding
N
Project Location


Hood Canal
Breach 1
Breach 2
Breach 3
Breach 4
Breach 5
Breach 6
Alternative 2 -- Selective Breaches
Elevated Roads Remain
Legend
roads
dike breach
irregular flooding
regular flooding
N
Project Location


Hood Canal
Breach 1
Breach 2
Breach 3
Breach 4
Breach 5
Breach 6
Alternative 3 -- Selective Breaches
Partial Road Removal and
Replacement with Wood Boardwalk
Legend
wooden boardwalk
submerged road
dike breach
irregular flooding
regular flooding
N
Project Location


Hood Canal
Alternative 4 -- Full Dike Removal
Partial Road Removal
& Replacement with
Wood Boardwalk
Legend
wooden boardwalk
submerged road
dike removal
irregular flooding
regular flooding
unimpeded flooding
N
Project Location


Hood Canal
Alternative 5 -- Full Dike Removal
Complete Road Removal
& Replacement with
Wood Boardwalk
Legend
wood boardwalk
dike removal
irregular flooding
regular flooding
unimpeded flooding
N
Project Location


Hood Canal
Alternative 6 -- Full Dike Removal
Complete Road Removal
& Replacement with
Concrete Boardwalk
Legend
concrete boardwalk
dike removal
irregular flooding
regular flooding
unimpeded flooding
N
Project Location

Appendix E

Project Plan

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Scale: 1"=400'

MLLW = 0.0' (NOAA) −3.8' (MAP)
MHHW = 11.84' (NOAA) 8.04' (MAP)
Ext. High Tide = 13.7' (NOAA) 9.9' (MAP)
Mean Higher High Water Inundation Area
Ext. High Tide Inundation Area
Coordinates are per Wash. State Plan North
Ⓣ = Tide Gate

N

Scale: 1"=400'

MAP Datum is both Project and original TPU Datum

Build 1050' Elevated Walkway
(See 5 of 9)

ANNAS BAY

3.8

HV-125
11.70

W.L.
3.8

Notch

Ⓣ

5400 cy W.L. 5.3

05-04

Dike Removal
Limits, 4990 ft

6200 cy

Notch

4250 cy

Notch

Ⓣ

Skokomish River (Nalley Slough)

N743000

~5000 cy

Replace Timber
Power Poles
with
Fiberglass
Poles

PP

Build
Maintenance
Pad for
Transmission
Towers (565 cy/pad)
(See Sheet 4 of 6)

Fill existing
Borrow Pits
to match
surrounding
terrain
and secure
Dike "Notches"

Created by Acroplot Evaluation Version

675'

800'

Elevated Boardwalk

PP

Remove
All Roads

PP

PP

PP

2700 cy

1500'

Existing Road on Dike

N742000

N741000

E936000

E937000

E938000

4.9 Acre
Waste Area

W.L.
7.8

W.L.
6.7

W.L.
3.8

HV-122
12.01

W.L. 3.8

W.L.
3.8

05-05

Date
10/10/05

Sheet No.
3 of 9

RIVER DIKE REMOVAL
PRELIMINARY GRADING PLAN

Tacoma Public Utilites Property
Skokomish Nation, Washington

Designed:
RG

Drawn:
RG

Mason Conservation District
1051 SE Hwy 3, Shelton, Washington 98584